HIGHWAY WORK PROPOSAL

Proposal Number: 2 3

Wisconsin Department of Transportation
DT1502 10/2010 s.66.29(7) Wis. Stats.

COUNTY	STATE PROJECT ID	FEDERAL PROJECT ID	PROJECT DESCRIPTION	HIGHWAY
Milwaukee	2070-09-70	WISC 2015 287	CTH Y Intersection with 60th Street	Local Street

This proposal, submitted by the undersigned bidder to the Wisconsin Department of Transportation, is in accordance with the advertised request for proposals. The bidder is to furnish and deliver all materials, and to perform all work for the improvement of the designated project in the time specified, in accordance with the appended Proposal Requirements and Conditions.

Proposal Guaranty Required, $ 40,000.00 Payable to: Wisconsin Department of Transportation	Attach Proposal Guaranty on back of this PAGE.
Bid Submittal Due Date: May 12, 2015 Time (Local Time): 9:00 AM	Firm Name, Address, City, State, Zip Code **SAMPLE** **NOT FOR BIDDING PURPOSES**
Contract Completion Time August 26, 2015	
Assigned Disadvantaged Business Enterprise Goal DISC %	This contract is exempt from federal oversight.

This certifies that the undersigned bidder, duly sworn, is an authorized representative of the firm named above; that the bidder has examined and carefully prepared the bid from the plans, Highway Work Proposal, and all addenda, and has checked the same in detail before submitting this proposal or bid; and that the bidder or agents, officer, or employees have not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this proposal bid.

Do not sign, notarize, or submit this Highway Work Proposal when submitting an electronic bid on the Internet.

Subscribed and sworn to before me this date _____

(Signature, Notary Public, State of Wisconsin)

(Print or Type Name, Notary Public, State Wisconsin)

(Date Commission Expires)

Notary Seal

(Bidder Signature)

(Print or Type Bidder Name)

(Bidder Title)

For Department Use Only

Type of Work Removing pavement, base aggregate, storm sewer, concrete paving, concrete curb and gutter, sidewalk, traffic signals, signing, pavement marking.	
Notice of Award Dated	Date Guaranty Returned

PLEASE ATTACH
PROPOSAL GUARANTY HERE

Effective with November 2007 Letting

PROPOSAL REQUIREMENTS AND CONDITIONS

The bidder, signing and submitting this proposal, agrees and declares as a condition thereof, to be bound by the following conditions and requirements.

If the bidder has a corporate relationship with the proposal design engineering company, the bidder declares that it did not obtain any facts, data, or other information related to this proposal from the design engineering company that was not available to all bidders.

The bidder declares that they have carefully examined the site of, and the proposal, plans, specifications and contract forms for the work contemplated, and it is assumed that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and quantities of work to be performed and materials to be furnished, and as to the requirements of the specifications, special provisions and contract. It is mutually agreed that submission of a proposal shall be considered conclusive evidence that the bidder has made such examination.

The bidder submits herewith a proposal guaranty in proper form and amount payable to the party as designated in the advertisement inviting proposals, to be retained by and become the property of the owner of the work in the event the undersigned shall fail to execute the contract and contract bond and return the same to the office of the engineer within fourteen (14) days after having been notified in writing to do so; otherwise to be returned.

The bidder declares that they understand that the estimate of quantities in the attached schedule is approximate only and that the attached quantities may be greater or less in accordance with the specifications.

The bidder agrees to perform the said work, for and in consideration of the payment of the amount becoming due on account of work performed, according to the unit prices bid in the following schedule, and to accept such amounts in full payment of said work.

The bidder declares that all of the said work will be performed at their own proper cost and expense, that they will furnish all necessary materials, labor, tools, machinery, apparatus, and other means of construction in the manner provided in the applicable specifications and the approved plans for the work together with all standard and special designs that may be designed on such plans, and the special provisions in the contract of which this proposal will become a part, if and when accepted. The bidder further agrees that the applicable specifications and all plans and working drawings are made a part hereof, as fully and completely as if attached hereto.

The bidder, if awarded the contract, agrees to begin the work not later than ten (10) days after the date of written notification from the engineer to do so, unless otherwise stipulated in the special provisions.

The bidder declares that if they are awarded the contract, they will execute the contract agreement and begin and complete the work within the time named herein, and they will file a good and sufficient surety bond for the amount of the contract for performance and also for the full amount of the contract for payment.

The bidder, if awarded the contract, shall pay all claims as required by Section 779.14, Statutes of Wisconsin, and shall be subject to and discharge all liabilities for injuries pursuant to Chapter 102 of the Statutes of Wisconsin, and all acts amendatory thereto. They shall further be responsible for any damages to property or injury to persons occurring through their own negligence or that of their employees or agents, incident to the performance of work under this contract, pursuant to the Standard Specifications for Road and Bridge Construction applicable to this contract.

In connection with the performance of work under this contract, the contractor agrees to comply with all applicable state and federal statutes relating to non-discrimination in employment. No otherwise qualified person shall be excluded from employment or otherwise be subject to discrimination in employment in any manner on the basis of age, race, religion, color, gender, national origin or ancestry, disability, arrest or conviction record (in keeping with s.111.32), sexual orientation, marital status, membership in the military reserve, honesty testing, genetic testing, and outside use of lawful products. This provision shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation, and selection for training, including apprenticeship. The contractor further agrees to ensure equal opportunity in employment to all applicants and employees and to take affirmative action to attain a representative workforce.

The contractor agrees to post notices and posters setting forth the provisions of the nondiscrimination clause, in a conspicuous and easily accessible place, available for employees and applicants for employment.

If a state public official (section 19.42, Stats.) or an organization in which a state public official holds at least a 10% interest is a party to this agreement, this contract is voidable by the state unless appropriate disclosure is made to the State of Wisconsin Ethics Board.

Effective with August 2007 Letting

BID PREPARATION

Preparing the Proposal Schedule of Items

A General

(1) Obtain bidding proposals as specified in section 102 of the standard specifications prior to 11:45 AM of the last business day preceding the letting. Submit bidding proposals using one of the following methods:

1. Electronic bid on the internet.
2. Electronic bid on a printout with accompanying diskette or CD ROM.
3. Paper bid under a waiver of the electronic submittal requirements.

(2) Bids submitted on a printout with accompanying diskette or CD ROM or paper bids submitted under a waiver of the electronic submittal requirements govern over bids submitted on the internet.

(3) The department will provide bidding information through the department's web site at http://www.dot.wisconsin.gov/business/engrserv/bid-letting-information.htm. The contractor is responsible for reviewing this web site for general notices as well as information regarding proposals in each letting. The department will also post special notices of all addenda to each proposal through this web site no later than 4:00 P.M. local time on the Thursday before the letting. Check the department's web site after 5:00 P.M. local time on the Thursday before the letting to ensure all addenda have been accounted for before preparing the bid. When bidding using methods 1 and 2 above, check the Bid Express™ on-line bidding exchange at http://www.bidx.com/ after 5:00 P.M. local time on the Thursday before the letting to ensure that the latest schedule of items Expedite file (*.ebs or *.00x) is used to submit the final bid.

(4) Interested parties can subscribe to the Bid Express™ on-line bidding exchange by following the instructions provided at the www.bidx.com web site or by contacting:

Info Tech Inc.
5700 SW 34th Street, Suite 1235
Gainesville, FL 32608-5371
email: mailto:customer.support@bidx.com

(5) The department will address equipment and process failures, if the bidder can demonstrate that those failures were beyond their control.

(6) Contractors are responsible for checking on the issuance of addenda and for obtaining the addenda. Notice of issuance of addenda is posted on the department's web site at http://www.dot.wisconsin.gov/business/engrserv/bid-letting-information.htm or by calling the department at (608) 266-1631. Addenda can ONLY be obtained from the departments web site listed above or by picking up the addenda at the Bureau of Highway Construction, Room 601, 4802 Sheboygan Avenue, Madison, WI, during regular business hours.

B Submitting Electronic Bids

B.1 On the Internet

(1) Do the following before submitting the bid:

1. Have a properly executed annual bid bond on file with the department.
2. Have a digital ID on file with and enabled by Info Tech Inc. Using this digital ID will constitute the bidder's signature for proper execution of the bidding proposal.

(2) In lieu of preparing, delivering, and submitting the proposal as specified in 102.6 and 102.9 of the standard specifications, submit the proposal on the internet as follows:

1. Download the latest schedule of items reflecting all addenda from the Bid Express™ web site.
2. Use Expedite™ software to enter a unit price for every item in the schedule of items.
3. Submit the bid according to the requirements of Expedite™ software and the Bid Express™ web site. Do not submit a bid on a printout with accompanying diskette or CD ROM or a paper bid. If the bidder does submit a bid on a printout with accompanying diskette or a paper bid in addition to the internet submittal, the department will disregard the internet bid.
4. Submit the bid before the hour and date the Notice to Contractors designates.
5. Do not sign, notarize, and return the bidding proposal described in 102.2 of the standard specifications.

(3) The department will not consider the bid accepted until the hour and date the Notice to Contractors designates.

B.2 On a Printout with Accompanying Diskette or CD ROM

(1) Download the latest schedule of items from the Wisconsin pages of the Bid Express™ web site reflecting the latest addenda posted on the department's web site at **http://www.dot.wisconsin.gov/business/engrserv/bid-letting-information.htm**. Use Expedite ™ software to prepare and print the schedule of items. Provide a valid amount for all price fields. Follow instructions and review the help screens provided on the Bid Express™ web site to assure that the schedule of items is prepared properly.

(2) Staple an 8 1/2 by 11 inch printout of the Expedite™ generated schedule of items to the other proposal documents submitted to the department as a part of the bidder's sealed bid. As a separate submittal not in the sealed bid envelop but due at the same time and place as the sealed bid, also provide the Expedite™ generated schedule of items on a 3 1/2 inch computer diskette or CD ROM. Label each diskette or CD ROM with the bidder's name, the 4 character department-assigned bidder identification code from the top of the bidding proposal, and a list of the proposal numbers included on that diskette or CD ROM as indicated in the following example:

Bidder Name

BN00

Proposals: 1, 12, 14, & 22

(3) If bidding on more than one proposal in the letting, the bidder may include all proposals for that letting on one diskette or CD ROM. Include only submitted proposals with no incomplete or other files on the diskette or CD ROM.

(4) The bidder-submitted printout of the Expedite™ generated schedule of items is the governing contract document and must conform to the requirements of section 102 of the standard specifications. If a printout needs to be altered, cross out the printed information with ink or typewriter and enter the new information and initial it in ink. If there is a discrepancy between the printout and the diskette or CD ROM, the department will analyze the bid using the printout information.

(5) In addition to the reasons specified in section 102 of the standard specifications, proposals are irregular and the department may reject them for one or more of the following:

1. The check code printed on the bottom of the printout of the Expedite™ generated schedule of items is not the same on each page.
2. The check code printed on the printout of the Expedite™ generated schedule of items is not the same as the check code for that proposal provided on the diskette or CD ROM.

3. The diskette or CD ROM is not submitted at the time and place the department designates.

C Waiver of Electronic Submittal

(1) The bidder may request a waiver of the electronic submittal requirements. Submit a written request for a waiver in lieu of bids submitted on the internet or on a printout with accompanying diskette or CD ROM. Use the waiver that was included with the paper bid document sent to the bidder or type up a waiver on the bidder's letterhead. The department will waive the electronic submittal requirements for a bidding entity (individual, partnership, joint venture, corporation, or limited liability company) for up to 4 individual proposals in a calendar year. The department may allow additional waivers for equipment malfunctions.

(2) Submit a schedule of items on paper conforming to section 102 of the standard specifications. The department charges the bidder a $75 administrative fee per proposal, payable at the time and place the department designates for receiving bids, to cover the costs of data entry. The department will accept a check or money order payable to: "Wisconsin, Dept. of Transportation."

(3) In addition to the reasons specified in section 102 of the standard specifications, proposals are irregular and the department may reject them for one or more of the following:

1. The bidder fails to provide the written request for waiver of the electronic submittal requirements.
2. The bidder fails to pay the $75 administrative fee before the time the department designates for the opening of bids unless the bidder requests on the waiver that they be billed for the $75.
3. The bidder exceeds 4 waivers of electronic submittal requirements within a calendar year.

(4) In addition to the reasons specified in section 102 of the standard specifications, the department may refuse to issue bidding proposals for future contracts to a bidding entity that owes the department administrative fees for a waiver of electronic submittal requirements.

PROPOSAL BID BOND

Wisconsin Department of Transportation

DT1303 1/2006

Proposal Number	Project Number	Letting Date
Name of Principal		
Name of Surety	State in Which Surety is Organized	

We, the above-named Principal and the above-named Surety, are held and firmly bound unto the State of Wisconsin in the sum equal to the Proposal Guaranty for the total bid submitted for the payment to be made; we jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns. The condition of this obligation is that the Principal has submitted a bid proposal to the State of Wisconsin acting through the Department of Transportation for the improvement designated by the Proposal Number and Letting Date indicated above.

If the Principal is awarded the contract and, within the time and manner required by law after the prescribed forms are presented for signature, enters into a written contract in accordance with the bid, and files the bond with the Department of Transportation to guarantee faithful performance and payment for labor and materials, as required by law, or if the Department of Transportation shall reject all bids for the work described, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect. In the event of failure of the Principal to enter into the contract or give the specified bond, the Principal shall pay to the Department of Transportation **within 10 business days of demand** a total equal to the Proposal Guaranty as liquidated damages; the liability of the Surety continues for the full amount of the obligation as stated until the obligation is paid in full.

The Surety, for value received, agrees that the obligations of it and its bond shall not be impaired or affected by any extension of time within which the Department of Transportation may accept the bid; and the Surety does waive notice of any such extension.

IN WITNESS, the Principal and Surety have agreed and have signed by their proper officers and have caused their corporate seals to be affixed this date: **(DATE MUST BE ENTERED)**

PRINCIPAL

(Company Name) **(Affix Corporate Seal)**

(Signature and Title)

(Company Name)

(Signature and Title)

(Company Name)

(Signature and Title)

(Company Name)

(Signature and Title)

(Name of Surety) **(Affix Seal)**

(Signature of Attorney-in-Fact)

NOTARY FOR PRINCIPAL

(Date)

State of Wisconsin)
) ss.
_____ County)

On the above date, this instrument was acknowledged before me by the named person(s).

(Signature, Notary Public, State of Wisconsin)

(Print or Type Name, Notary Public, State of Wisconsin)

(Date Commission Expires)

Notary Seal

NOTARY FOR SURETY

(Date)

State of Wisconsin)
) ss.
_____ County)

On the above date, this instrument was acknowledged before me by the named person(s).

(Signature, Notary Public, State of Wisconsin)

(Print or Type Name, Notary Public, State of Wisconsin)

(Date Commission Expires)

Notary Seal

IMPORTANT: A certified copy of Power of Attorney of the signatory agent must be attached to the bid bond.

CERTIFICATE OF ANNUAL BID BOND

Wisconsin Department of Transportation

DT1305 8/2003

Time Period Valid (From/To)
Name of Surety
Name of Contractor
Certificate Holder Wisconsin Department of Transportation

This is to certify that an annual bid bond issued by the above-named Surety is currently on file with the Wisconsin Department of Transportation.

This certificate is issued as a matter of information and conveys no rights upon the certificate holder and does not amend, extend or alter the coverage of the annual bid bond.

Cancellation: Should the above policy be cancelled before the expiration date, the issuing surety will give thirty (30) days written notice to the certificate holder indicated above.

(Signature of Authorized Contractor Representative) (Date)

March 2010

LIST OF SUBCONTRACTORS

Section 66.0901(7), Wisconsin Statutes, provides that as a part of the proposal, the bidder also shall submit a list of the subcontractors the bidder proposes to contract with and the class of work to be performed by each. In order to qualify for inclusion in the bidder's list a subcontractor shall first submit a bid in writing, to the general contractor at least 48 hours prior to the time of the bid closing. The list may not be added to or altered without the written consent of the municipality. A proposal of a bidder is not invalid if any subcontractor and the class of work to be performed by the subcontractor has been omitted from a proposal; the omission shall be considered inadvertent or the bidder will perform the work personally.

No subcontract, whether listed herein or later proposed, may be entered into without the written consent of the Engineer as provided in Subsection 108.1 of the Standard Specifications.

Name of Subcontractor	Class of Work	Estimated Value

DECEMBER 2000

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS - PRIMARY COVERED TRANSACTIONS

Instructions for Certification

1. By signing and submitting this proposal, the prospective contractor is providing the certification set out below.

2. The inability of a person to provide the certification required below will not necessarily result in denial of participation in this covered transaction. The prospective contractor shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective contractor to furnish a certification or an explanation shall disqualify such person from participation in this transaction.

3. The certification in this clause is a material representation of fact upon which reliance was placed when the department determined to enter into this transaction. If it is later determined that the contractor knowingly rendered an erroneous certification in addition to other remedies available to the Federal Government the department may terminate this transaction for cause or default.

4. The prospective contractor shall provide immediate written notice to the department to whom this proposal is submitted if at any time the prospective contractor learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

5. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. You may contact the department to which this proposal is being submitted for assistance in obtaining a copy of those regulations.

6. The prospective contractor agrees by submitting this proposal that, should this contract be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department entering into this transaction.

7. The prospective contractor further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," which is included as an addendum to PR-1273 - "Required Contract Provisions Federal Aid Construction Contracts," without

modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

8. The contractor may rely upon a certification of a prospective subcontractor/materials supplier that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A contractor may decide the method and frequency by which it determines the eligibility of its principals. Each contractor may, but is not required to, check the Disapproval List (telephone # 608/266/1631).

9. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

10. Except for transactions authorized under paragraph 6 of these instructions, if a contractor in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department may terminate this transaction for cause or default.

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions

(1) The prospective contractor certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offense enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the prospective contractor is unable to certify to any of the statements in this certification, such prospective contractor shall attach an explanation to this proposal.

Special Provisions

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SPECIAL PROVISIONS

1. General.

Perform the work under this construction contract for Project 2070-09-70, CTH Y Intersection with 60th Street, Local Street, located in the City of Greenfield, in Milwaukee County, Wisconsin as the plans show and execute the work as specified in the State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, 2015 Edition, as published by the department, and these special provisions.

If all or a portion of the plans and special provisions are developed in the SI metric system and the schedule of prices is developed in the US standard measure system, the department will pay for the work as bid in the US standard system.
100-005 (20141107)

2. Scope of Work.

The work under this contract shall consist of removing pavement, aggregate base, storm sewer, concrete paving, concrete curb and gutter, sidewalk, traffic signals, signing, pavement marking, landscaping and all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.
104-005 (20090901)

3. Prosecution and Progress.

Begin work within ten calendar days after the engineer issues a written notice to do so.

Provide the start date to the engineer in writing within a month after executing the contract but at least 14 calendar days before the preconstruction conference. Upon approval, the engineer will issue the notice to proceed within ten calendar days before the approved start date.

To revise the start date, submit a written request to the engineer at least two weeks before the intended start date. The engineer will approve or deny that request based on the conditions cited in the request and its effect on the department's scheduled resources.

4. Traffic.

Perform work under this item in accordance to the requirements of standard spec 643, and as approved by the engineer, except as hereinafter modified.

Substantially accomplish the construction sequence, including the associated traffic control shall be as detailed in the Traffic Control Plan, and as described herein.

Maintain one lane, desirably 12-foot wide, but no less than 10-foot wide of traffic in each direction at all times during construction. Establish lane closures, if required, only for the time period necessary to safely accommodate nearby work. Notify the engineer a minimum of 48 hours in advance of any desired lane closures.

Milwaukee County owns the traffic signals along S. 60th St. at the intersection of W. Layton Ave. (CTH Y) and will do any modifications required to the traffic signal timing during construction. Contact Daniel Murphy at (414) 259-5942 at least one week in advance of the need to modify the signal timing.

Do not proceed with any construction operation until all traffic control devices for such work are in the proper location.

Maintain adequate turning provisions for vehicles, including trucks and buses, at all intersections during construction operations, as directed by the engineer.

Maintain pedestrian access to abutting properties and at intersections as directed by the engineer.

In the event access to properties is needed by emergency vehicles and equipment such as fire, police, and rescue services, cooperate to the fullest extent in accommodating emergency access in the shortest time. The traffic requirements are subject to changes at the direction of the engineer in the event of an emergency.

5. Temporary Street Access / Driveways.

It is the responsibility of the contractor to construct and maintain in a satisfactory condition temporary street access and temporary driveways at locations determined in the field by the engineer to provide vehicular and/or pedestrian access.

Maintain or provide where necessary vehicular and/or pedestrian access to adjacent businesses as directed by the engineer. Prior to the start of construction activities, set-up a meeting with the commercial property owners located in the project area and the engineer to inform them of the proposed work schedule, to listen to their access requirements, and to find mutually acceptable working methods to minimize disruption of their businesses.

Maintain local access to residences within the project area to the maximum extent possible. Do not close or remove from service any residential or commercial approaches without giving 48-hour notice to the occupants of the premises to remove their vehicles prior to the removal or closing of the drive approach access. Maintain reasonable access to abutting business locations shall be maintained at all times.

Maintain access to all adjacent residences and businesses throughout the duration of this contract. If it becomes necessary to close a driveway temporarily for construction activities, notify the affected parties at least 48 hours in advance of the construction operation.

6. Utilities.

This contract does not come under the provision of Administrative Rule Trans 220.
107-065 (20080501)

Underground and overhead utility facilities are located within the project limits. Utility adjustments are required for this construction project as noted below. Coordinate construction activities with a call to Diggers Hotline or a direct call to the utilities that have facilities in the area as required by per statutes. Use caution to ensure the integrity of underground facilities and maintain code clearances from overhead facilities at all times.

Some utility work, as described below, is dependent on prior work being performed by the contractor at a specific site. Provide the engineer and the affected utility a good faith notice of when the utility is to start work at the site. Give notice 14 to 16 calendar days in advance of when the site will be available to the utility. Follow up with a confirmation notice to the engineer and the utility not less than 3 working days before the site will be ready for the utility to begin its work.

Contact each utility company listed in the plans, prior to preparing bids, to obtain current information on the status of existing and any new utility relocation work.

The following utilities are located within the project area:

AT&T Wisconsin has buried telephone lines located from Station 112+62 to 115+45, 42 feet right of the reference line of W Layton Avenue and a buried line from Station 112+62 to 114+42, 58 feet left of the reference line of W Layton Avenue. There is a crossing from the 58 feet left to 42 feet right at Station 114+42. No adjustment to these facilities are anticipated with this project. AT&T has overhead lines on WE Energies poles. No adjustment to these facilities is anticipated with this project.

Contact Mark Eder at (414) 535-7401 three business days in advance to coordinate work at these locations.

Time Warner Cable (TWC) has underground TV lines outside the right-of-way along the northeast corner of W. Layton Ave and S. 60th St. No adjustment to this line is anticipated with this project. TWC has overhead lines on WE Energies poles. No adjustment to these facilities is anticipated with this project.

Contact Steve Storm at 414-908-4785 to coordinate work at these locations.

WE Energies (Electric) has overhead (OH) lines from Station 112+62 to 115+60, 62’ LT of the reference line of W Layton Avenue. WE Energies –Electric has OH lines in South 60th Street from Station 52+00 to Station 57+00 60’ LT of the reference line of S 60th Street. No adjustment to this line is anticipated with this project. The poles are in the following locations:

Station	Offset
112+54	62’LT
113+00	62’LT
114+40	62’ LT
114+43	62’RT
115+60	58’LT

No adjustment or relocation of these poles are anticipated with this project.

Contact Ken Franecki at (414) 944-5541 to coordinate work at these locations.

WE Energies (Gas) has gas mains and valves approximately 54’ RT of the reference line of W. Layton Avenue and 54’ RT of the reference line of S. 60th Street. WE Energies (Gas) will adjust the gas valves at the following locations:

Station	Offset
114+35	50’RT

Contact Dan Warren at (262) 763-1086 five business days to prior coordinate work in this area.

Milwaukee County Department of Transportation (MCDOT) has existing traffic signals within the project area that will be removed and replaced with new traffic signals by the contractor as shown in the plans. Temporary traffic signals are to be installed by the contractor.

MCDOT has a buried Fiber Optic line throughout the entire project length from 1 foot right of the reference line to 10 feet left of the reference line. An alteration of this line is included in this project.

There are two vaults which will require adjustment prior to paving operations. They are located at Station 113+97, 5’LT and Station 116+54, 1’RT and are included in the plans.

Traffic signal operation coordination is required. Contact Stanley Jackson, Milwaukee County Electrical Maintenance Division at (414) 257-6593 for coordination involving the existing traffic signals and communications during construction, excluding signal timing. Daniel Murphy, MCDOT Traffic Engineering at (414) 257-5942 for signal timing at least one week in advance.

City of Greenfield has light poles located in the median on W. Layton Ave (CTH Y) that will be relocated by the contractor as shown in the plans. Contact the City of Greenfield and coordinate with the engineer prior to relocating the light poles. The locations of the light poles are shown here:

Station	Offset
112+68	1'LT
114+30	2'LT
115+80	2'LT
117+26	5'RT

Contact Mr. Richard Sokol at (414) 329-5324 to coordinate these adjustments.

City of Greenfield has sanitary sewers and manholes located 24feet LT of the reference line of W. Layton Avenue from Station 112+62 to 115+02. The line is approximately 40' LT of the reference line from Station 115+45 to 119+76. No adjustment of this line is anticipated with this project. The City of Greenfield has a sanitary sewer and manholes located from Station112+62 to 115+50 50'RT of the reference line of W Layton Avenue. No adjustments to this line are anticipated with this project. The locations of the manholes are shown here:

Station	Offset
112+61	24'LT
115+00	50' RT
115+02	25'LT
115+46	48'LT
115+50	50'RT

There is a sanitary sewer and manholes in S 60th Street from Station 50+00 to 57+00 at the reference line of S 60th Street. No adjustment of this line is anticipated with this project.

The locations of the manholes are shown here:

Station	Offset
54+64	R/L

This manhole will be adjusted with paving operations and will require a new internal seal.

Contact Mr. Richard Sokol at (414) 329-5324 to coordinate these adjustments.

City of Milwaukee has a water main and valves located 36 feet RT of the reference line of W. Layton Avenue from Station 112+62 to 118+07. No adjustment of this line is anticipated with this project. The City of Milwaukee has a water main and valves located 19 feet LT of the reference line of W. Layton Avenue from Station 112+62 to 115+24 and a water main and valves 25 feet LT of the reference line of W Layton Avenue from Station 115+75 to 120+00. No adjustments to this line are anticipated with this project. The City of Milwaukee has a water main and valves located 13 feet RT of the reference line of S 60th Street from Station 50+00 to 58+00 and a water main and valves 18 feet LT of the reference line of S 60th Street from Station 50+00 to 53+60. No adjustments to this line are anticipated with this project.

Contact Dave Goldapp at (414) 286-6301 for any coordination regarding these lines.

7. Erosion Control.

Perform the work under this item in accordance to the requirements of standard spec 107.20, and as hereinafter supplemented.

Take adequate precautions to install and maintain necessary erosion and sediment control during construction operations at curbs and gutters, and at other locations as determined by the engineer. Protect storm sewer inlets at locations determined by the engineer with a filter fabric meeting accepted design criteria, standards and specifications.

Provide an erosion control implementation plan (ECIP) 14 days prior to the pre-construction conference. Do not start construction operations until a written approval of the ECIP has been granted from the department.

Excess fill material, spoils and equipment should be stockpiled on upland areas an adequate distance away from wetlands, storm sewer inlets, floodplains, critical habitat and the waterways. Protect piles of stockpiled soil against erosion and do not create nuisance dust emissions.

When engaged in roadway cleaning operations, use equipment having vacuum or water spray mechanisms to eliminate the dispersion of particulate matter into the atmosphere. If vacuum equipment is employed, it must have a suitable self-contained particulate collector to prevent discharge from the collection bin into the atmosphere.

Pursue operations in a timely and diligent manner, continuing all construction operations methodically from the initial removals and topsoil stripping operations through the subsequent grading, paving, and re-topsoiling to minimize the period of exposure to possible erosion.

Topsoil graded areas, as designated by the engineer, immediately after grading has been completed within those areas. Sod all topsoiled areas within 3 business days after placement of topsoil.

The construction site activities will be regulated under ch. 283, Wis. Stats., ch. NR216, Wis. Adm. Code, and in accordance to Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit No. WI-S067831-3, Construction Site Storm Water Runoff. All erosion control and storm water management activities undertaken at the site must be done in accordance to the terms and conditions of the permit. A Certificate of Permit Coverage must be posted in a conspicuous place on the construction site. The Certificate of Permit Coverage (WDNR Publication #WT-813) and WPDES General Permit can be obtained from the engineer.

8. Dust Control Implementation Plan.

A Description

Develop, update, and implement a detailed Dust Control Implementation Plan (DCIP) for all land-disturbing construction activities and associated impacts both within the project

site boundaries and outside the project site boundaries. This article also specifies contract bid items the contractor shall incorporate into their DCIP.

B (Vacant)

C Construction

C.1 General

Minimize dust emissions resulting from land disturbing activities. Do not generate excessive air borne particulate matter (PM) or nuisance dust conditions. The contractor has direct responsibility for controlling dust at all times throughout the duration of the contract, 24 hours per day, 7 days per week, including non-working hours, weekends, and holidays.

Submit a DCIP to the engineer for review at least 14 calendar days before the preconstruction conference. Coordinate with the department, if requested, to resolve DCIP related issues before the preconstruction conference. The department will either approve the DCIP or request revisions. Do not initiate any land-disturbing activities without the department's approval of the DCIP.

C.2 Dust Control Implementation Plan Contents

Develop a DCIP tailored to the specific needs of the project. Consider potential impacts to businesses and residences adjacent to the job site. Describe in detail all land disturbing, dust generating activities. Identify strategies to prevent, mitigate, and collect excess dust. Establish clear lines of communication with the engineer to ensure that all dust control issues can be dealt with promptly.

The DCIP shall include, but not be limited to, all of the following:

1. A single contact person with overall responsibility for the DCIP development as well as surveillance and remediation of job related dust. Include the following:
    - Name, firm, address, and working-hours phone number.
    - Non-working-hours phone number.
    - Email address.
2. Individual contact persons and their respective areas of responsibility. Include the following:
    - Name, firm, address, and working-hours phone number.
    - Non-working-hours phone number.
    - Email address.
3. A site map locating project features, the job site boundaries, all ingress and egress points, air intakes and other dust-sensitive areas, and all public and private paved surfaces within and immediately adjacent to the job site. Show where specific land disturbing, dust generating activities will occur and, to the extent possible, where the contractor plans to employ various dust control or prevention strategies.

4. A matrix showing, for each anticipated land disturbing, dust generating activity, the following:
    - Preventive measures that will be employed.
    - The applicable contact person.
    - The contractor's timetable and/or surveillance measures used to determine when remediation is required.
    - The specific dust control and remediation measures that will be employed. List the specific contract bid items that will be used for payment. Also indicate costs that are incidental to the contract.
    - Both maintenance and cleanup schedules and procedures.
    - How excess and waste materials will be disposed of.
5. A description of how off-site impacts will be monitored and dealt with.

C.3 Updating the Dust Control Implementation Plan

Update the DCIP throughout the term of the contract as the engineer directs. Obtain the engineer's approval for all DCIP alterations. Also obtain the engineer's approval for DCIP routine adjustments for weather, job conditions, or emergencies that will have an impact on payment under the bid items listed in the approved DCIP.

C.4 Dust Control Deficiencies

Correct engineer identified dust control deficiencies within the time the engineer specifies. The engineer will allow from 30 minutes to 24 hours from the time the engineer notifies the contractor in writing of the deficiency. Deficiencies include, but are not limited to, actions or lack of actions resulting in excessive dust, failing to comply with the contractor's dust control implementation plan or associated special provisions, and failing to properly maintain equipment.

D Measurement

The department will measure the various bid items associated with dust control as specified in the applicable measurement subsections of either the standard specifications or other contract special provisions. The department will not measure work performed under a DCIP alteration unless the engineer specifically approves that alteration.

Measurement under the DCIP shall include, but is not limited to, the contract bid items listed below:

624.0100 Water

The department will measure work completed under other existing contract bid items if approved as a part of the DCIP. The department will consider new bid items to the contract if proposed under the DCIP. The department will not measure work required under the DCIP that is not included in contract bid items.

E Payment

All costs associated with the development and updating of the DCIP are incidental to the contract. The department will pay separately for the work required to implement the actions approved in the DCIP under the contract bid items approved as a part of the

DCIP. All other costs associated with work approved under the DCIP are incidental to the contract.

If the contractor fails to correct a dust control deficiency within the specified time, the department will deduct $5,000 per day from payments due the contractor for each calendar day, or fraction of a day, that the deficiency exists. The department will assess time beginning with contractor notification and ending when the engineer accepts the correction. After expiration of the specified time for correction, the engineer may correct, or have a third party, correct the deficiency. In addition to the $5,000 per day deduction, the department will deduct costs of this correction from payments due the contractor.
SEF Rev. 091120

9. QMP Base Aggregate.

A Description

A.1 General

(1) This special provision describes contractor quality control (QC) sampling and testing for base aggregates, documenting those test results, and documenting related production and placement process changes. This special provision also describes department quality verification (QV), independent assurance (IA), and dispute resolution.

(2) Conform to standard spec 301, standard spec 305, and standard spec 310 as modified here in this special provision. Apply this special provision to material placed under all of the Base Aggregate Dense and Base Aggregate Open Graded bid items, except do not apply this special provision to material classified as reclaimed asphaltic pavement placed under the Base Aggregate Dense bid items.

(3) Do not apply this special provision to material placed under the Aggregate Detours, Salvaged Asphaltic Pavement Base, Breaker Run, Select Crushed, Pit Run, Subbase, or Riprap bid items.

(4) Provide and maintain a quality control program, defined as all activities related to and documentation of the following:
1. Production and placement control and inspection.
2. Material sampling and testing.

(5) Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes required sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:

http://roadwaystandards.dot.wi.gov/standards/cmm/index.htm

A.2 Contractor Testing for Small Quantities

(1) The department defines a small quantity, for each individual Base Aggregate bid item, as a plan quantity of 9000 tons or less of material as shown in the schedule of items under that bid item.

(2) The requirements under this special provision apply equally to a small quantity for an individual bid item except as follows:

1. The contractor need not submit a full quality control plan but shall provide an organizational chart to the engineer including names, telephone numbers, and current certifications of all persons involved in the quality control program for material under affected bid items.
2. Divide the aggregate into uniformly sized sublots for testing as follows:

Plan Quantity	Minimum Required Testing
≤ 1500 tons	One test from production, load-out, or placement at the contractor's option[1]
> 1500 tons and ≤ 6000 tons	Two tests of the same type, either from production, load-out, or placement at the contractor's option[1]
> 6000 tons and ≤ 9000 tons	Three placement tests[2] [3]

[1] If using production tests for acceptance, submit test results to the engineer for review prior to incorporating the material into the work. Production test results are valid for a period of 3 years.

[2] For 3-inch material, obtain samples at load-out.

[3] If the actual quantity overruns 9000 tons, create overrun sublots to test at a rate of one additional placement test for each 3000 tons, or fraction of 3000 tons, of overrun.

3. No control charts are required. Submit aggregate load-out and placement test results to the engineer within one business day of obtaining the sample. Assure that all properties are within the limits specified for each test.
4. Department verification testing is optional for quantities of 6000 tons or less.

(3) Material represented by a sublot with any property outside the specification limits is nonconforming. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

B Materials

B.1 Quality Control Plan

(1) Submit a comprehensive written quality control plan to the engineer at or before the pre-construction meeting. Do not place base before the engineer reviews and comments on the plan. Construct the project as that plan provides.

(2) Do not change the quality control plan without the engineer's review. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in each of the contractor's laboratories as changes are adopted. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication means that will be used, and action time frames.

3. A list of source and processing locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
4. Test results for wear, sodium sulfate soundness, freeze/thaw soundness, and plasticity index of all aggregates requiring QC testing. Obtain this information from the region materials unit or from the engineer.
5. Descriptions of stockpiling and hauling methods.
6. Locations of the QC laboratory, retained sample storage, and where control charts and other documentation is posted.
7. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.

B.2 Personnel

(1) Have personnel certified under the department's highway technician certification program (HTCP) perform sampling, testing, and documentation as follows:

Required Certification Level:	Sampling or Testing Roles:
Aggregate Technician IPP Aggregate Sampling Technician Aggregate Assistant Certified Technician (ACT-AGG)	Aggregate Sampling[1]
Aggregate Technician IPP Aggregate Assistant Certified Technician (ACT-AGG)	Aggregate Gradation Testing, Aggregate Fractured Particle Testing, Aggregate Liquid Limit and Plasticity Index Testing

[1] Plant personnel under the direct observation of an aggregate technician certified at level one or higher may operate equipment to obtain samples.

(2) A certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

B.3 Laboratory

(1) Perform QC testing at a department-qualified laboratory. Obtain information on the Wisconsin laboratory qualification program from:

Materials Management Section
3502 Kinsman Blvd.
Madison, WI 53704
Telephone: (608) 246-5388
http://www.dot.state.wi.us/business/engrserv/lab-qualification.htm

B.4 Quality Control Documentation

B.4.1 General

(1) Submit base aggregate placement documentation to the engineer within 10 business days after completing base placement. Ensure that the submittal is complete, neatly organized, and includes applicable project records and control charts.

B.4.2 Records

(1) Document all placement observations, inspection records, and control adjustments daily in a permanent field record. Also include all test results in the project records. Provide test results to the engineer within 6 hours after obtaining a sample. For 3-inch base, extend this 6-hour limit to 24 hours. Post or distribute tabulated results using a method mutually agreeable to the engineer and contractor.

B.4.3 Control Charts

(1) Plot gradation and fracture on the appropriate control chart as soon as test results are available. Format control charts according to CMM 8.30. Include the project number on base placement control charts. Maintain separate control charts for each base aggregate size, source or classification, and type.

(2) Provide control charts to the engineer within 6 hours after obtaining a sample. For 3-inch base, extend this 6-hour limit to 24 hours. Post or distribute charts using a method mutually agreeable to the engineer and contractor. Update control charts daily to include the following:

1. Contractor individual QC tests.
2. Department QV tests.
3. Department IA tests.
4. Four-point running average of the QC tests.

(3) Except as specified under B.8.2.1 for nonconforming QV tests, include only QC tests in the running average. The contractor may plot process control or informational tests on control charts, but do not include these tests, conforming QV tests, or IA tests in the running average.

B.5 Contractor Testing

(1) Test gradation, fracture, liquid limit and plasticity index during placement for each base aggregate size, source or classification, and type.

(2) Test gradation once per 3000 tons of material placed. Determine random sample locations and provide those sample locations to the engineer. Obtain samples after the material has been bladed, mixed, and shaped but before compacting; except collect 3-inch samples from the stockpile at load-out. Do not sample from material used to maintain local traffic or from areas of temporary base that will not have an overlying pavement. On days when placing only material used to maintain local traffic or only temporary base that will not have an overlying pavement, no placement testing is required.

(3) Split each contractor QC sample and identify it according to CMM 8.30. Retain the split for 7 calendar days in a dry, protected location. If requested for department comparison testing, deliver the split to the engineer within one business day.

(4) The engineer may require additional sampling and testing to evaluate suspect material or the technician's sampling and testing procedures.

(5) Test fracture for each gradation test until the fracture running average is above the lower warning limit. Subsequently, the contractor may reduce the frequency to one test per 10 gradation tests if the fracture running average remains above the warning limit.

(6) Test the liquid limit and plasticity index for the first gradation test. Subsequently, test the liquid limit and plasticity index a minimum of once per 10 gradation tests.

B.6 Test Methods

B.6.1 Gradation

(1) Test gradation using a washed analysis conforming to the following as modified in CMM 8.60:

Gradation..... AASHTO T 27
Material finer than the No. 200 sieve..... AASHTO T 11

(2) For 3-inch base, if 3 consecutive running average points for the percent passing the No. 200 sieve are 8.5 percent or less, the contractor may use an unwashed analysis. Wash at least one sample out of 10. If a single running average for the percent passing the No. 200 sieve exceeds 8.5 percent, resume washed analyses until 3 consecutive running average points are again 8.5 percent passing or less.

(3) Maintain a separate control chart for each sieve size specified in standard spec 305 or standard spec 310 for each base aggregate size, source or classification, and type. Set control and warning limits based on the standard specification gradation limits as follows:

1. Control limits are at the upper and lower specification limits.
2. There are no upper warning limits for sieves allowing 100 percent passing and no lower control limits for sieves allowing 0 percent passing.
3. Dense graded warning limits, except for the No. 200 sieve, are 2 percent within the upper and lower control limits. Warning limits for the No. 200 sieve are set 0.5 percent within the upper and lower control limits.
4. Open graded warning limits for the 1-inch, 3/8-inch, and No. 4 sieves are 2 percent within the upper and lower control limits. Upper warning limits for the No. 10, No. 40, and No. 200 sieves are 1 percent inside the upper control limit.

B.6.2 Fracture

(1) Test fracture conforming to CMM 8.60. The engineer will waive fractured particle testing on quarried stone.

(2) Maintain a separate fracture control chart for each base aggregate size, source or classification, and type. Set the lower control limit at the contract specification limit, either specified in another special provision or in table 301-2 of standard spec

301.2.4.5. Set the lower warning limit 2 percent above the lower control limit. There are no upper limits.

B.6.3 Liquid Limit and Plasticity

(1) Test the liquid limit and plasticity according to AASHTO T 89 and T 90.

(2) Ensure the material conforms to the limits specified in standard spec table 301-2.

B.7 Corrective Action

B.7.1 General

(1) Consider corrective action when the running average trends toward a warning limit. Take corrective action if an individual test exceeds the contract specification limit. Document all corrective actions both in the project records and on the appropriate control chart.

B.7.2 Placement Corrective Action

(1) Do not blend additional material on the roadbed to correct gradation problems.

(2) Notify the engineer whenever the running average exceeds a warning limit. When 2 consecutive running averages exceed a warning limit, the engineer and contractor will discuss appropriate corrective action. Perform the engineer's recommended corrective action and increase the testing frequency as follows:

1. For gradation, increase the QC testing frequency to at least one randomly sampled test per 1000 tons placed.
2. For fracture, increase the QC testing frequency to at least one test per gradation test.

(3) If corrective action improves the property in question such that the running average after 4 additional tests is within the warning limits, the contractor may return to the testing frequency specified in B.5.3. If corrective action does not improve the property in question such that the running average after 4 additional individual tests is still in the warning band, repeat the steps outlined above starting with engineer notification.

(4) If the running average exceeds a control limit, material starting from the first running average exceeding the control limit and ending at the first subsequent running average inside the control limit is nonconforming and subject to pay reduction.

(5) For individual test results significantly outside the control limits, notify the engineer, stop placing base, and suspend other activities that may affect the area in question. The engineer and contractor will jointly review data, data reduction, and data analysis; evaluate sampling and testing procedures; and perform additional testing as required to determine the extent of potentially unacceptable material. The engineer may direct the contractor to remove and replace that material. Individual test results are significantly outside the control limits if meeting one or more of the following criteria:

1. A gradation control limit for the No. 200 sieve is exceeded by more than 3.0 percent.
2. A gradation control limit for any sieve, except the No. 200, is exceeded by more than 5.0 percent.
3. The fracture control limit is exceeded by more than 10.0 percent.

B.8 Department Testing

B.8.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 2 business days after the department obtains the sample.

B.8.2 Verification Testing

B.8.2.1 General

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in B.2 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests of each base aggregate size, source or classification, and type during placement conforming to the following:
1. One non-random test on the first day of placement.
2. At least one random test per 30,000 tons, or fraction of 30,000 tons, placed.

(3) The department will sample randomly, at locations independent of the contractor's QC work, collecting one sample at each QV location. The department will collect QV samples after the material has been bladed, mixed, and shaped but before compacting; except, for 3-inch aggregates, the department will collect samples from the stockpile at load-out. The department will split each sample, test half for QV, and retain half.

(4) The department will conduct QV tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to the specification, the department will take no further action. If QV test results are nonconforming, add the QV to the QC test results as if it were an additional QC test.

B.8.3 Independent Assurance

(1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform an IA review

according to the department's independent assurance program. That review may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Reviewing required worksheets and control charts.
6. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in B.9.

B.9 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor may review the data, examine data reduction and analysis methods, evaluate sampling and testing procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If the project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

C (Vacant)

D (Vacant)

E Payment

(1) Costs for all sampling, testing, and documentation required under this special provision are incidental to this work. If the contractor fails to perform the work required under this special provision, the department may reduce the contractor's pay. The department will administer pay reduction under the non-performance of QMP administrative item.

(2) For material represented by a running average exceeding a control limit, the department will reduce pay by 10 percent of the contract price for the affected Base Aggregate bid items listed in subsection A. The department will administer pay reduction under the Nonconforming QMP Base Aggregate Gradation or Nonconforming QMP Base Aggregate Fracture Administrative items. The department will determine the quantity of nonconforming material as specified in B.7.2.

301-010 (20100709)

10. Adjusting Manhole Covers.

This work shall be according to the pertinent provisions of standard spec 611, as shown on the plans, and as hereinafter provided.

Revise standard spec 611.3.7 by deleting the last paragraph.

Set the manhole frames so that they comply with the surface requirements of standard spec 450.3.2.9. At the completion of the paving, a 6-foot straightedge shall be placed over the centerline of each manhole frame parallel to the direction of traffic. A measurement shall be made at each side of the frame. The two measurements shall be averaged. If this average is greater than 5/8 inches, reset the manhole frame to the correct plane and elevation. If this average is 5/8 inches or less but greater than 3/8 inches, the manhole frame shall be allowed to remain in place but shall be paid for at 50 percent of the contract unit price.

If the manhole frame is higher than the adjacent pavement, the two measurements shall be made at each end of the straightedge. These two measurements shall be averaged. The same criteria for acceptance and payment as above, shall apply.

611-005 (20030820)

11. Protection of Concrete.

Supplement standard spec 415.3.14 as follows:

The contractor shall provide for a minimum of one concrete finisher to remain on the project site after final finishing of all concrete surfaces until such time as the concrete has hardened sufficiently to resist surface scarring caused by footprints, handprints, or any other type of imprint, malicious or otherwise. The finisher shall actively and continuously patrol on foot the newly placed concrete and repair any damage to the surface that might be sustained as described above.

The cost for providing the finisher(s), the necessary equipment, and materials shall be construed to be included in the contract unit price for each concrete item.

12. Concrete Pavement 9-Inch.

Concrete Pavement 9-Inch shall conform to standard spec 415:

- The concrete pavement shall not be tined. An artificial turf drag approved by the engineer shall be used to texture the surface.

13. Traffic Control, General.

Install and maintain all traffic control devices throughout the duration of the project. Sufficient quantities have been included for all traffic switches described in the "Prosecution and Progress" and "Traffic" special provisions. Any additional traffic control necessary for additional traffic switches completed for the contractor's convenience will not be paid for under this contract.

14. Removing Signs Type II, Item 638.2602.

Replace standard spec 638.3.4 (2) and (3) with the following:

All signs that are removed become the property of Milwaukee County and shall be stockpiled at a location designated by the engineer. Cost of this work shall be incidental to the bid item Removing Signs Type II. The engineer will contact Milwaukee County Highway Maintenance, Greg Heisel, (414) 257-6566, to arrange for pickup of salvaged materials. Do not damage salvaged materials.

15. Removing Small Sign Supports, Item 638.3000.

Replace standard spec 638.3.5 (2) with the following:

All small sign supports that are removed become the property of Milwaukee County and shall be stockpiled at a location designated by the engineer. Cost of this work shall be incidental to the bid item Removing Small Sign Supports. The engineer will contact Milwaukee County Highway Maintenance, Greg Heisel, (414) 257-6566, to arrange for pickup of salvaged materials. Do not damage salvaged materials. Remove unused concrete footings as specified in standard spec 638.3.9, Restoring the Site.

16. Electrical Service Meter Breaker Pedestal S 60th St and W Layton Ave (CTH Y), Item 656.0200.01.

Append standard spec 656.2.3 with the following:

The contractor shall be responsible for preparing and submitting the electrical service installation request and the utility installation cost, the utility installation cost invoice will be paid for under the respective items titled electrical service utility charges. Submit the electrical service installation request a minimum of 60 days prior to the expected date of traffic signal turn on. The contractor shall notify the engineer and Daniel Murphy at the Milwaukee County Department of Transportation, daniel.murphy@milwcnty.com, when the application is submitted to the utility.

Electrical utility company service energy cost will be billed to and paid for by the maintaining authority.

Install the cabinet base and meter breaker pedestal first, so the electrical utility company can install the service lateral. The control cabinet shall not be installed until after the service lateral has been completed by the utility company. Finish grade the service trench, replace topsoil that is lost or contaminated with other materials, fertilize, seed, water and mulch all areas that are disturbed by the electrical utility company.

Append standard spec 656.5(3) with the following:

Payment for Electrical Service Meter Breaker Pedestal is full compensation for providing all materials including the meter breaker pedestal, manual bypass meter socket if required, conduit and fittings, circuit breakers, grounding electrodes and connections, for preparing and submitting the electrical service installation request, grading the service trench, replacing topsoil, and for fertilizing, seeding, and mulching to restore the disturbed area of the service trench.

17. Pedestal Bases; Traffic Signal Standards Aluminum (FT).

Replace standard spec 657.2.2.4(1) with the following:
Furnish standards consisting of extruded seamless aluminum alloy 6061-T6 manufactured conforming to ASTM B241, or porthole extruded aluminum alloy 6061-T6 manufactured conforming to ASTM B429. Also conform to the following:

1. Threaded on one end, tapered, and conforming to national pipe threading dimensions and normal practice.
2. Outside dimension of 4 1/2 inches.
3. Schedule 80 aluminum pipe.
4. The poles shall be anodized and black in color.

Append standard spec 657.2.2.5(5) with the following:

Pedestal Bases shall be anodized and black in color.

18. Traffic Signal Faces.

Replace standard spec 658.2.2.2(1) with the following:

Furnish polycarbonate resin housings, doors, visors, and backplates. Use black housings and dull black door faces, visors, and backplates. Ensure that the door is sized for 12-inch nominal diameter lenses and is held shut with eyebolts secured with wing nuts. Use cut away or tunnel type visors as the plans show. Use backplates that project 5 inches beyond all sides of the signal housing unless the plans call for a larger size. Use only new materials as specified in standard spec 106.1.

Replace standard spec 658.2.2.2(3) with the following:

Use wire nuts to wire the traffic signal cable to the LED Module wire. The wire nuts shall be of sufficient size for the number and size of the wires being connected.

19. Pedestrian Signal Faces.

Replace standard spec 658.2.3.1(1) with the following:

Furnish polycarbonate resin housings, door and visors. The assembly shall be a 16-inch LED ready pedestrian signal housing that is black, drilled for top/bottom pipe mount with the ability to rotate 360 degrees on any mounting bracket. At no rotation angle shall the mount interfere with the door hinge. Provide a tunnel visor on the 16-inch housing door. Furnish the door face and tunnel visor in dull black unless the contract specifies otherwise. Use only new materials as specified in standard spec 106.1.

Replace standard spec 658.2.3.1(2) with the following:

Use wire nuts to wire the traffic signal cable to the LED Module wire. The wire nuts shall be of sufficient size for the number and size of the wires being connected.

20. Inlet Covers Type 57, Item SPV.0060.01.

A Description
This special provision describes furnishing and installing a heavy duty cast iron frame and grate at the locations designated and in accordance to standard spec 611 and the details shown on the plans.

B Materials
Furnish all materials in accordance to the pertinent requirements of standard spec 611.2.

C (Vacant)

D Measurement
The department will measure Inlet Covers Type 57 by each unit installed and acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.01	Inlet Covers Type 57	Each

Payment is full compensation in accordance to standard spec 611.5.4.

21. Communications Vault, 24 x 36 x 39-Inch, Item SPV.0060.02.

A Description

Work under this item shall consist of furnishing and installing a communications vault and vault lid in accordance to the details shown on the Plans and as hereinafter provided.

B Materials

Furnish a communications vault and vault lid constructed of polymer concrete material or approved equivalent, and be gray in color.

The Communications Vault, 24 x 36 x 39-Inch shall have an effective height of 39 inches (1-18-inch tall stackable vault and 1-24-inch stackable vault with 3-inch overlap).

The communications vault shall have a minimum design load of 15,000 pounds and shall have a permanently recessed logo that reads "MILWAUKEE COUNTY COMMUNICATIONS". The communications vault and lid shall have two ½-inch x 4-inch pull slots. The lid surface shall have a coefficient of friction of 0.50 in accordance to ASTM C-1028.

Manufacturer approved gasketing to resist water from entering the communications vault shall be installed between the lid and the top 18-inch deep stackable vault.

The communications vault lid shall be secured to the vault with two 3/8-inch 16 UNC stainless steel penta-head bolts to lock the lid and shall include the appropriate washers

A fiber optic cable support assembly shall consist of multiple brackets, racks, and/or rails required to suspend the required surplus cabling and any splice enclosures for a single communications vault. The support assemblies shall be recommended and approved by the manufacturer of the fiber optic cable and splice enclosures. The support assembly shall be made from or coated with weather resistant material such that there is no corrosion of the supports. The support assemblies shall be anchored to the existing vault using stainless steel hardware. The fiber optic cable support assemblies shall be gray in color.

Void areas between vault openings and conduit shall be filled with self-curing caulking that will provide a permanent, flexible rubber which is unaffected by sunlight, water, oils, mild acids, and alkali. The caulking shall be mildew resistant and non-flammable. The material shall provide a permanent bond between the conduit entering the vault and the polymer concrete. The caulking shall be gray in color.

C Construction

The Communications Vault shall be installed in accordance to applicable requirements of standard spec 611 and as hereinafter provided.

A manufacturer approved knockout punch driver shall be used to provide openings in the vaults for conduit. Alternatively, the required openings may be machined at the time of stackable vault fabrication.

Voids between entering conduits and the punch driven openings shall not exceed ½-inch. The void areas shall be caulked from the interior and the exterior of the communications vault. The conduit and caulk shall be allowed to fully cure as per the manufacturer's specifications prior to backfilling.

D Measurement
The department will measure Communications Vault (size) as each individual vault, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.02	Communications Vault, 24 x 36 x 39-Inch	Each

Payment is full compensation for furnishing and installing all materials, including stackable vaults, lids, gasketing, bolts, washers, stainless steel mounting hardware, fiber optic cable support assembly, caulking, and coarse aggregate; for furnishing all excavation, backfilling, topsoil, restoration, and disposal of surplus materials.

22. Poles Type 10, Item SPV.0060.03; Type 12, Item SPV.0060.04.

A Description
Work under this item consists of furnishing and installing monotube poles.

B Materials
Furnish support structures designed to conform to the minimum wall thickness the plan details show and to AASHTO design and fabrication standards for structural supports for highway signs, luminaries, and traffic signals. Use a design life of 50 years. Design to withstand a 3 second gust wind speed of 90 mph (145 km/h). Do not use the methods of Appendix C of those AASHTO standards.

Use Category III criteria for Type 9 and Type 10 Poles. Use Category II criteria for Type 12 and Type 13 Poles.

For structures requiring a fatigue analysis, use 45 mph (72 km/h) for truck-induced gusts.

After welding and before zinc coating, clean the exterior surface of each steel pole free of all loose rust and mill scale, dirt, oil or grease, and other foreign substances.

Apply a zinc coating conforming to the process specified for steel sign bridges in standard spec 641.2.8. Ensure that the zinc coating is tight, free from rough areas or slag, and presents a uniform appearance.

After completing manufacturing, clean the exterior surfaces of each pole free of all loose scale, dirt, oil or grease, and other foreign substances.

Provide reinforced hand holes measuring 4 inches by 6 inches (100 mm by 150 mm) as the plans show. Locate the lower hand hole 18 inches (450 mm) from the bottom of the pole base to the center of the door. For the hand hole, include an access cover mounted to the pole by two ¼”-20 x ¾” (m6 x 1.00 x 19 mm) hex-head stainless steel bolts.

Provide a grounding lug complete with mounting hardware, as required, inside the pole as the plans show. Provide access to the grounding lug from the hand hole. Weld the ground lug directly opposite the hand hole on the inside wall of the pole.

Equip the top of the shaft with a removable, ventilated cap held securely in place by at least 3 ¼” -20 x ¾” (m6 x 1.00 x 19 mm) hex-head stainless steel set screws.

Ensure that all castings are clean, smooth, and with all details well defined and true to pattern.

Include cover plates for all luminaire attachment locations on the pole which will not have a luminaire attached to it under this project.

Attach base plates firmly to the pole shaft by welding or other approved method.

Include anchor bolts meeting AASHTO standards applicable to the pole type and loading. Provide a mounting template that ensures correct installation of anchor bots in foundation.

C Construction

Install poles as specified in the plan details and using appropriate contractor-furnished anchor bolts and hardware. Use the appropriate anchor bolt template to ensure correct installation. Secure pole to anchor assembly and document tensioning procedures conforming to standard spec 641.3.1.2.

After completing erection using normal pole shaft raking techniques, ensure the centerline of the shaft appears vertical.

Install identification plaques as the plans show following the structure numbering on the signal plan.

Secure rodent screening covering the space between the base plate and the concrete base.

D Measurement

The department will measure Poles (Type) as each individual pole, acceptably completed.

E Payment

The department will pay for measured quantity at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.03	Poles Type 10	Each
SPV.0060.04	Poles Type 12	Each

Payment is full compensation for providing and installing poles including all hardware and fittings necessary to install the poles, and for installing identification plaques, if required.

23. Monotube Arms 30-FT, Item SPV.0060.05; 45-FT, Item SPV.0060.06; 55-FT, Item SPV.0060.07.

A Description
Work under this item consists of furnishing and installing monotube arms.

B Materials
Design support structures conforming to the minimum wall thickness the plan details show and to AASHTO design and fabrication standards for structural supports for highway signs, luminaires, and traffic signals. Use a design life of 50 years. Design to withstand a 3 second gust wind speed of 90 mph (145 km/h). Do not use the methods of appendix C of those AASHTO standards.

Use category III criteria for 15 to 30-foot arms. Use category II criteria for 35 to 55-foot arms.

For structures requiring a fatigue analysis, use 45 mph (72 km/h) for truck-induced gusts.

Base the designs on the completed maximum loading configuration the standard detail drawing shows. Along with the materials list, submit a certificate of compliance certifying that the arms as furnished, conform to the above structural performance requirements. Ensure that the certificate of compliance is on the manufacturer's letterhead, signed by an authorized company officer, and notarized. Send a copy of the certificate and a copy of the monotube arm shop drawings to the department electrical engineer.

Furnish monotube arms conforming to the following:

1. Consist of zinc coated steel round or oval members.

2. Have a mounting device welded to the pole end of the monotube arm that allows the attachment of the arm to a pole as the plans show.

3. Have stiffeners or gussets if required between the arm tube and the arm mounting device to provide adequate strength to resist side loads.

4. Have a clean, uniform natural finish. No paint or other corrosion preventive maintenance coating is required.

After welding and before zinc coating, clean exterior surfaces of each arm free of all loose rust and mill scale, dirt, oil or grease, and other foreign substances.

Apply zinc coating as specified for sign bridge components in standard spec 641.2.8. Ensure that the zinc coating is tight, free from rough areas or slag, and presents a uniform appearance.

After manufacturing is complete, clean the exterior surfaces of each pole free of all loose scale, dirt, oil, or grease, and other foreign substances.

C (Vacant)

D Measurement

The department will measure Monotube Arm (Length) as each individual arm, acceptably completed.

E Payment

The department will pay for measured quantity at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.05	Monotube Arms 30-FT	Each
SPV.0060.06	Monotube Arms 45-FT	Each
SPV.0060.07	Monotube Arms 55-FT	Each

Payment is full compensation for providing and installing all materials, including all hardware, fittings, mounting devices, shims, and attachments necessary to completely install the arms.

24. Internal Sanitary Manhole Seals, Item SPV.0060.08.

A Description

This special provision describes furnishing and installing internal sanitary manhole chimney seals.

B Materials

Furnish a seal meeting Section 3.5.4.1(c) of the Standard Specifications for Sewer and Water Construction in Wisconsin. An internal manhole seal, such as supplied by Adaptor, Inc. of West Allis, or as accepted by the City of Greenfield. Obtain prior approval of the internal manhole seal material specifications from the City of Greenfield before installing.

C Construction

Any sanitary manhole within the project limits that does not contain an internal/external manhole seal shall be furnished with a new seal. If a sanitary manhole contains a seal and is to be adjusted in any way, the internal/external manhole seal shall be removed prior to any adjustments. The existing internal/external manhole seal shall be reused. If the internal/external manhole seal cannot be reused, a new internal manhole seal shall be

installed. If an internal manhole seal is damaged due to the fault of the contractor, the seal shall be replaced at the contractor's expense. Before project completion, the contractor shall ensure that all sanitary manholes contain a proper internal manhole seal.

Field measure the inside diameter of the manhole frame and the manhole chimney, and determine as to whether the inside face of the frame is vertical or tapered in order to obtain the proper size and shape rubber seal.

Install rubber chimney seals no sooner than 24 hours following chimney back plastering.

The surfaces against which the sleeve is to be compressed shall be circular, clean, reasonably smooth and free of any loose materials and excessive voids. Repair all flaws in these surfaces with the approved low-shrink mortar or grind smooth. Apply a bead of butyl rubber caulk conforming to ASSHTO M-198 Type B to the lower sealing surface of sleeve.

The seal shall be installed in accordance to the manufacturer's recommendation. It is intended that the internal portion of this seal extend from the frame to the top of the cone as a single piece. The surface against which the seal is to be placed shall be circular without offsets, clean, reasonably smooth and free of any loose material and excessive voids. Any flaws in these surfaces shall be repaired with the approved low-shrink mortar and ground smooth. The seal shall be placed and approved by a City of Greenfield inspector prior to placement of the stone base material.

D Measurement

The department will measure Internal Sanitary Manhole Seals as each individual unit, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.08	Internal Sanitary Manhole Seals	Each

Payment is full compensation for furnishing and installing internal rubber chimney seals; and for furnishing all labor, tools, equipment and incidentals necessary to complete the contract work.

25. Utility Line Opening, Item SPV.0060.09.

A Description

This special provision describes excavating to uncover utilities for the purpose of determining elevation and potential conflicts with proposed storm sewer or traffic signal bases, as shown on the plans or as directed by the engineer.

B (Vacant)

C Construction

Excavate in such a manner that the utility in question is not damaged and the safety of the workers is not compromised. Perform the utility line openings (ULO) as soon as possible and at least 10 days in advance of proposed utility construction to allow any conflicts to be resolved with minimal disruption. Prior to ordering structures, perform ULO's. Where utilities are within 6 feet of each other at a potential conflict location, perform only one utility line opening. In these cases, a single utility line opening will be considered full payment to locate multiple utilities. Utility line openings include a trench up to 10 feet long as measured at the trench bottom, and of any depth required to locate the intended utility. Approve and coordinate all utility line openings with the engineer. Notify the utility engineers or their agents of this work a minimum of 3 days prior to the work so they may be present when the work is completed. Verify the need for performing ULO's, since some of the utilities may have been relocated prior to the start of construction.

D Measurement

The department will measure Utility Line Opening as each individual ULO, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.09	Utility Line Opening	Each

Payment is full compensation for the excavation required to expose the utility line; backfilling with existing material removed from the excavation; compacting the backfill material; restoring the site; and for cleanup. Existing pavement, concrete curb, gutter, and sidewalk removals necessary to facilitate utility line openings are not be considered part of, or paid for under, Utility Line Openings, but are considered separate, and will be measured and paid for separately as removal items. Replacement pavement, concrete curb, gutter, and sidewalk items are also considered separate from Utility Line Openings, and will be measured and paid for separately.

26. Furnish and Install 12 SM/12 MM Fiber Optic Communications Cable, Item SPV.0090.01.

A Description

Work under this item shall consist of furnishing and installing 12 SM Fiber Optic Communications Cable as shown on the plans, and as hereinafter provided.

B Materials

Furnish a cable meeting all requirements stated in this specification.

The 12SM communications cable shall include four fiber subunits. The first (blue) and second (orange) subunit shall include twelve singlemode (SM) optical fibers.

B.1 Fiber Characteristics – Singlemode

All fibers in the cable must be usable fibers and meet required specifications. Each optical fiber shall consist of a doped silica core surrounded by a concentric silica cladding. The singlemode fiber shall be matched clad design. The multimode fiber shall be graded index.

Core Diameter:	8.3 µm.
Cladding Diameter:	125.0 ± 1.0 µm.
Core-to-Cladding Offset:	< 0.8 µm.
Cladding Non-Circularity:	< 1.0%
Coating Diameter:	245 ± 10 µm.
Colored Fiber Diameter:	Nominal 250 µm.
Attenuation Uniformity:	No point discontinuity greater than 0.10 dB at either 1310 nm or 1550 nm.
Attenuation at the Water Peak:	The attenuation at 1383 at 3 nm shall not exceed 2.1 dB/km.
Cutoff Wavelength:	<1260 nm
Mode-Field Diameter:	9.30 ± 0.50 µm. at 1310 nm, 10.50 ± 1.00 µm. at 1550 nm.

The coating shall be a dual layered, UV-cured acrylate applied by the fiber manufacturer, and shall be mechanically strippable.

B.2 Fiber characteristics – Multimode

Core Diameter:	62.5 ± 3 µm.
Cladding Diameter:	125.0 ± 1.0 µm.
Core-to-Cladding Offset:	< 3 µm.
Cladding Non-Circularity:	< 5%
Coating Diameter:	245 ± 10 µm.
Colored Fiber Diameter:	nominal 250 µm.

B.3 Fiber Parameters

Fiber Type: Singlemode

Required Fiber Grade – Maximum Individual Fiber Attenuation.

The maximum dispersion shall be less than 3.2 ps/(nm · km) from 1285 nm to 1330 nm and shall be less than 18 ps/(nm · km) at 1550 nm.

Fiber Type: Multimode	
Attenuation:	< 3.5 dB at 850 nm < 1.0 dB at 1300 nm
Bandwidth:	140 MHz*km at 850 nm 500 MHz*km at 1300 nm
Numerical Aperture (NA):	27.5 $\pm$ 0.015

The fiber manufacturer shall proof-test 100% of the optical fiber to a minimum load of 100 kpsi.

B.4 Fiber Construction

Optical fibers shall be placed inside a loose buffer tube. Each buffer tube shall contain 6 fibers. The fibers shall not adhere to the inside of the buffer tube.

Each fiber shall be distinguishable by means of color-coding according to the TIA/EIA-298 Specifications, “Optical Fiber Cable Color Coding”. Buffer tubes containing fibers shall be color-coded with distinct and recognizable colors according to the above references specification.

In buffer tubes containing multiple fibers, the colors shall be stable across the specified storage and operating temperature range and not subject to fading or smearing onto each other or into the gel filling material. Colors shall not cause fibers to stick together.

Buffer tubes shall be kink resistant within the specified minimum bend radius.

Fillers may be included in the cable core to lend symmetry to the cable cross-section where needed.

The central anti-buckling member shall consist of a glass reinforced plastic rod. The purpose of the central member is to prevent buckling of the cable.

Each buffer tube shall be filled with a non-hygroscopic, non-nutritive to fungus, electrically non-conductive, homogenous gel. The gel shall be free from dirt and foreign matter. The gel shall be readily removable with conventional nontoxic solvents. Buffer tubes shall be stranded around a central member using the reverse oscillation, or “S-Z”, stranding process.

The cable core shall contain a water-blocking material. The water blocking material shall be non-nutritive to fungus, electrically non-conductive and homogenous. It shall also be free from dirt and foreign matter and shall be readily removable with conventional (nontoxic) solvents.

Binders shall be applied with sufficient tension to secure the buffer tubes to the central member without crushing the buffer tubes. The binders shall be non-hygroscopic, non-wicking and dielectric with low shrinkage. The cable shall contain at least one ripcord under the sheath for easy sheath removal. Tensile strength shall be provided by a combination of high tensile strength dielectric yarns. The high tensile strength dielectric yarns shall be helically stranded evenly around the cable core.

All dielectric cables shall be sheathed with medium density polyethylene (MDPE). The minimum nominal jacket thickness shall be 1.4 mm. Jacketing material shall be applied directly over the tensile strength members and water blocking material. The polyethylene shall contain carbon black to provide ultraviolet light protection and shall not promote the growth of fungus.

The jacket or sheath shall be free of holes, splits, and blisters. The cable jacket shall contain no metal elements and shall be of a consistent thickness. Cable jackets shall be marked with manufacturer's name, sequential foot markings, year of manufacture, and a telecommunication handset symbol, as required by Section 350G of the National Electrical Safety Code (NESC). The actual length of the cable shall be within –0/+1% of the length markings. The marking shall be in contrasting color to the cable jacket. The height of the marking shall be approximately 2.5 mm.

The maximum pulling tension shall be 2700 N (608 lbf) during installation (short term) and 600 N (135 lbf) long term installed.

The shipping, storage, and operating temperature range of the cable shall be -40ºC to +70ºC. The installation temperature range of the cable shall be -30ºC to +70ºC.

When tested in accordance to FOTP-3, "Procedure to Measure Temperature Cycling Effects on Optical Fibers, Optical Cable, and Other Passive Fiber Optic Components", the average change in attenuation at extreme operational temperatures (-40ºC to +70ºC) shall not exceed 0.05 dB/km at 1550 nm for single-mode fiber. The magnitude of the maximum attenuation change of each individual fiber shall not be greater than 0.15 dB/km at 1550 nm.

B.5 General Cable Performance Specifications

When a one-meter static head or equivalent continuous pressure is applied at one end of a one-meter length of un-aged cable for 24 hours, no water shall leak through the open cable end. When a one-meter static head or equivalent continuous pressure is applied at one end of a one-meter length of aged cable for one hour, no water shall leak through the open cable end. The aging cycle is defined as exposing the cable to +85ºC $\pm$ 2ºC for 168 hours and two cycles of - 40ºC to +70ºC with cable held at these temperatures for 24 hours. At the end of this cycle, the cable will be decreased to +23ºC and held for 24 hours. The water penetration test is completed at the end of the 24-hour hold. Testing shall be performed in accordance to the industry standard test, FOTP-82, "Fluid Penetration Test for Fluid-Blocked Fiber Optic Cable".

When tested in accordance to FOTP-81, “Compound Flow (Drip) Test for Filled Fiber Optic Cable”, the cable shall exhibit no flow (drip or leak) of filling and/or flooding material at +65ºC.

The cable shall withstand a minimum compressive load 220 N/cm (125 lbf/in) applied uniformly over the length of the compression plate. The cable shall be tested in accordance to FOTP-41, “Compressive Loading Resistance of Fiber Optic Cables”, except that the load shall be applied at the rate of 3 mm to 20 mm per minute and maintained for ten minutes. The magnitude of the attenuation change shall be within the repeatability of the measurement system for 90% of the test fibers. The remaining 10% of the fibers shall not experience an attenuation change greater than 0.1 dB at 1550 nm (SM). The repeatability of the measurement system is typically 0.05 dB or less. No fibers shall exhibit a measurable change in attenuation after load removal.

When tested in accordance to FOTP-104, “Fiber Optic Cable Cyclic Flexing Test”, the cable shall withstand 25 mechanical flexing cycles at a rate of 30 cycles per minute around a sheave diameter not greater than 20 times the cable diameter. The magnitude of the attenuation change shall be within the repeatability of the measurement system for 90% of the test fibers. The remaining 10% of the fibers shall not experience an attenuation change greater than 0.1 dB at 1550 nm (SM). The repeatability of the measurement system is typically 0.05 dB or less. The outer cable jacket shall not exhibit evidence of cracking or splitting when observed under 5x magnification.

When tested in accordance to FOTP-25, “Repeated Impact Testing of Fiber Optic Cables and Cable Assemblies”, the cable shall withstand 25 impact cycles. The magnitude of the attenuation change shall be within the repeatability of the measurement system for 90% of the test fibers. The remaining 10% of the fibers shall not experience an attenuation change greater than 0.1 dB at 1550 nm (SM). The repeatability of the measurement system is typically 0.05 dB or less. The cable jacket shall not exhibit evidence of cracking or splitting at the completion of the test.

When tested in accordance to FOTP-33, “Fiber Optic Cable Tensile Loading and Bending Test”, using a maximum mandrel and sheave diameter of 560 mm, the cable shall withstand a tensile load of 2700 N (608 lbf) applied for one hour (using “Test Condition II” of the procedure). In addition, the cable sample, while subjected to a minimum load of 2660 N (600 lbf), shall be able to withstand a twist of 360 degrees in a length of less than 3 meters (9.9 feet). The magnitude of the attenuation change shall be within the repeatability of the measurement system for 90% of the test fibers. The remaining 10% of the fibers shall not experience an attenuation change greater than 0.1 dB at 1550 nm (SM). The repeatability of the measurement system is typically 0.05 dB or less. The cable shall not experience a measurable increase in attenuation when subjected to the rated residual tensile load, 890 N (200 lbf).

When tested in accordance to FOTP-85, “Fiber Optic Cable Twist Test”, a length of cable no greater than 2 meters will withstand 10 cycles of mechanical twisting. The magnitude of the attenuation change will be within the repeatability of the measurement system for

90% of the test fibers. The remaining 10% of the fibers will not experience an attenuation change greater than 0.1 dB at 1550 nm. The repeatability of the measurement system is typically 0.05 dB or less. The average increase in attenuation for the fibers shall be < 0.40 dB at 1300 nm. The cable jacket will exhibit no cracking or splitting when observed under 5x magnification after completion of the test.

B.6 Quality Assurance Provision

All cabled optical fibers greater than 1000 meters in length shall be 100% attenuation tested. The attenuation of each fiber shall be provided with each cable reel. The cable manufacturer shall be ISO 9001 registered. The cable manufacturer shall provide installation procedures and technical support concerning the items contained in this specification. The manufacturer shall certify that the supplied cable meets all requirements of these specifications.

B.7 Packaging

The completed cable shall be packaged for shipment on non-returnable wooden reels. Top and bottom ends of the cable shall be available for testing. Both ends of the cable shall be sealed to prevent the ingress of moisture. Each reel shall have a weatherproof reel tag attached identifying the reel and cable.

A cable data sheet shall accompany each cable. The following information shall be included:

- Cable Number
- Factory Order Number
- Customer Purchase Order Number
- Measured Attenuation of Each Fiber (for lengths > 1000 m)
- Ordered Length
- Actual Shipped Length

C Construction

All cable shall be installed as per Siecor Recommended Procedure 005-011, “Fiber Optic Cable Placing – Duct”, and Siecor Recommended Procedure 005-012, “Fiber Optic Cable Placing – Direct Buried”. These general procedures will be followed regardless of the manufacturer of the cable. If the cable manufacturer recommends an operation in conflict with these procedures, a request for installation procedure change shall be submitted for approval to the department. The maximum pulling tension shall be 2700 N (608 lbs) during installation (short term) and 600 N (135 lbs) long term installed.

Testing – The contractor shall provide the date, time and location of any tests required by this specification to the engineer at least 24 hours before performing the test.

Upon completion of the cable installation, splicing, and termination, the contractor shall test all fibers for continuity, events above 0.30 dB, and total attenuation of the cable. The test procedure is as follows:

A Certified Technician utilizing an Optical Time Domain Reflectometer (OTDR) and Optical Source/Power Meter must conduct the installation test. The Technician is directed to conduct the test using the Standard Operating Procedure as defined by the manufacturer of the test equipment.

The method of connectivity between the OTDR and the cable shall be a factory patch cord of a length equal to the "dead zone" of the OTDR. Optionally, the Technician can use a factory "fiber box" of 100 meters minimum with no splices within the box. The tests shall be conducted at 1310 and 1550 nm for all singlemode fibers and at 850 and 1300 nm for multimode fibers.

At the completion of the test, the contractor shall provide two copies of documentation of the test results to the engineer. The test documentation shall be bound and include the following:

- Cable and Fiber Identification
- Cable ID
- Cable Location – begin and end point
- Fiber ID, including tube and fiber color
- Operator Name
- Date and Time
- Setup Parameters
- Wavelength
- Pulse width (OTDR)
- Refractory index (OTDR)
- Range (OTDR)
- Scale (OTDR)
- Test Results

  a. OTDR Test:

  - Total Fiber Trace
  - Splice Loss/Gain
  - Events > 0.10 dB
  - Measured Length (Cable Marking)
  - Total Length (OTDR)
  - Attenuation (dB/km)

  Traces shall also be provided electronically.

  b. Optical Source/Power Meter

  - Total Attenuation

  These results shall be provided in tabular form.

The following shall be the criteria for the acceptance of the cable:

The test results shall demonstrate that the dB/km loss does not exceed +3% of the factory test or 1% of the cable's published production loss. The error rate for the test equipment will be taken into account.

No event shall exceed 0.10 dB. If any event is detected above 0.10 dB, the contractor must replace or repair that even point.

The total dB loss of the cable, less events, shall not exceed the manufacturer's production specifications as follows: 0.5 dB/km at both 1310 and 1550 nm for singlemode fibers; 3.5 dB/km @ 850 nm and 1.0 dB/km @ 1300 nm for multimode fibers.

If the total loss exceeds these specifications, the contractor shall replace or repair that cable run at the contractor's expense, both labor and materials. Elevated attenuation due to exceeding the pulling tension during installation will require the replacement of the cable run at the contractor's expense, both labor and materials.

D Measurement

The department will measure Furnish and Install 12 SM/12 MM Fiber Optic Communications Cable by the linear foot of cable in place and acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.01	Furnish and Install 12 SM/12 MM Composite Fiber Optic Communications Cable	LF

Payment is full compensation for furnishing, installing, and testing the fiber optic cable; and for disposal of surplus materials.

27. Tracer Wire, 12 AWG, Item SPV.0090.02.

A Description

Work under this item shall consist of installing tracer wire alongside fiber optic communication equipment in accordance to the details shown on the plans and as hereinafter provided.

B Materials

Furnish wire meeting the requirements of standard spec 655.

C Construction

A 12 AWG XLP insulated, solid, copper, yellow in color tracer wire shall be installed in each run of conduit which contains fiber optic cable. The wire shall be approximately 5 feet (1.5 m) longer than the run of conduit and shall be doubled back at least 2 feet (0.6 m) at each raceway access point. The tracer wire shall be anchored at each access point in a manner acceptable to the engineer. At each access point the wires from all conduits entering shall be twisted and joined using an appropriately sized wire nut. Wire that is installed to a traffic signal cabinet shall extend 3 feet beyond the conduit it enters the cabinet through.

Test the tracer wire following installation. Use a megger to perform ground resistance testing. Ensure that all wire tests, read infinity to ground. Provide results to the department. Replace tracer not meeting the infinity test result at no expense to the department.

D Measurement

The department will measure Tracer Wire, 12 AWG as each linear foot, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.02	Tracer Wire, 12 AWG	Each

Payment is full compensation for furnishing and installing all materials, including wire, wire nuts, and incidentals necessary to complete this item of work.

28. Battery Back-Up System; Item SPV.0105.01.

A Description

This specification describes furnishing and installing an uninterruptible power supply (UPS), switches, and auxiliary equipment to provide a battery back-up system (BBS) for traffic signal control applications.

B Materials

B.1 General

Furnish a BBS that will provide uninterruptible reliable emergency power to a traffic signal system in the event of a power failure or interruption. The BBS shall be capable of providing power for full run-time operation and for flashing mode operation of all traffic signals at an intersection. The BBS system shall have a shelf mounted configuration and shall include:

- Inverter/charger
- Automatic power transfer switch
- Automatic bypass switch
- Manually operated non-electronic bypass switch
- Manually operated non-electronic generator transfer switch
- All auxiliary equipment, hardware, and wiring to provide a complete operating BBS system
- Cabinet and cabinet equipment
- Batteries and battery equipment

The system shall be designed for outdoor applications, shall meet the environmental requirements of NEMA Standards Publication TS2 – 2003v02.06 – Traffic Controller Assemblies with NTCIP Requirements, except as modified herein, and shall be capable of receiving power from a generator.

Configure the BBS to provide a minimum of two hours of full run-time operation for an intersection using LED traffic signals, LED pedestrian signals, and LED blank out message signs with a total operating load of 1500 watts minimum.

B.2 Features

The UPS shall be an inverter/charger complying with UL 1778.

When utilizing battery power, the BBS output voltage shall be between 110 VAC and 125 VAC, pure sine wave output with THD < 3% at 60 Hz +/- 3 Hz.

Provide buck and boost capability to provide constant output voltage without battery input.

The range of operating temperatures for the inverter/charger shall be -34° C to +74° C.

The UPS shall be fully programmable and controllable, both locally using the UPS touch pad and remotely using a standard personal computer USB interface with Windows 7 operating system, including all UPS features listed in this specification; all settings, controls, logs, tests, and counters; and all other electronic features.

Provide a backlit LCD display to indicate current battery charge status, input/output voltages, power output, battery temperature, faults, alarms, date, time, and settings of the various relays.

UPS shall be fully SNMP Ethernet ready, including a RJ-45 (also known as an 8P8C) Ethernet connector port.

Provide on the UPS a resettable inverter event counter and a cumulative inverter timer.

All controls and external connections shall be on the front panel. The UPS unit shall sit horizontally on a shelf. All controls and labels shall be oriented to read horizontally.

Provide lightning/ surge protection complying with ANSI/IEEE C.62.41 and C.62.45 Cat A and B and UL 1449.

Equip the UPS with an event log for at minimum the last 100 events. The events shall be time and date stamped. The event log shall be retrievable via the USB port and the last event in the log shall be viewable from the LCD screen.

The UPS shall be capable of performing a SELF-TEST of the BBS. The duration of the SELF-TEST shall be programmable in 1-minute increments from one minute to four hours.

The operation of the flash mode shall be field programmable to activate at various times, battery capacities, or alarm conditions.

Provide password protection for certain maintenance controls such as Battery Test, BBS inverter ON/OFF, viewing the Event log, and changing default settings. Furnish the UPS with a default password and the ability for the user to change the password.

Use the following LED lights conditions to indicate current status:

Red LED Flashing	for ALARM
Red LED steady ON	for FAULT
Green LED Flashing	for battery back-up mode
Green LED steady ON	for normal line mode operation

Provide on the UPS at least four sets of NO / NC panel-mounted and potential free contact relays rated 1 Amp, 120 VAC, and labeled 1 through 4. Each relay's setting shall be either preset or programmable to activate under any number of conditions. The available settings for the relays shall be:

ON BATTERY – relay activates when BBS switches to battery power
LOW BATTERY – relay activates when batteries have reached a certain level of remaining useful capacity while on battery power. This number is adjustable by battery voltage.
TIMER – relay activates after being on battery power for a given amount of time. This number is adjustable from 0 to 8 hours.
UPS FAILURE – relay activates in the event of UPS inverter/charger failure to be able to run according to these specifications

B.3 Battery Requirements

Battery String Voltage	24 Vdc

Input Specifications

Nominal Input Voltage	120 VAC, Single Phase
Input Voltage Range	120 VAC +/- 25%
Input Frequency	60 Hz +/- 5%

Output Specifications

Nominal Output Voltage	120 VAC, Single Phase
Power Rating	2000 VA minimum at 25° C (1500 Watts at 74° C)
Output Frequency	60 Hz (+/- 3%)
Voltage Wave Form	Pure Sine Wave, THD < 3.0%
Efficiency (nominal)	Minimum 85% at 100% load

B.4 Switches

The four switches listed in this section may be in separate units or may be integrated into one or more units.

The range of operating temperatures for all switches shall be -34° C to +74° C.

B.4.1 Automatic Transfer Switch

Provide an automatic transfer switch to transfer the critical load to the UPS when the utility line fails or is out of tolerance range. The transfer from utility power to battery power shall not interfere with the normal operations of the traffic controller, conflict monitor, or any other peripheral devices within the traffic control system. The automatic transfer switch shall automatically disconnect the battery heater pads when the critical load is operating from the UPS.

Input / Output Specifications

Nominal Voltage	120 VAC, Single Phase
Voltage Range	92 to 135 VAC
Input Frequency	60 Hz +/- 5%
Current	20 A minimum

B.4.2 Automatic Bypass Switch

Furnish an automatic bypass switch to transfer the critical load to the utility line if there is a fault on the UPS, if there is battery failure, and upon complete battery discharge. The transfer from battery power to utility power shall not interfere with the normal operations of the traffic controller, conflict monitor, or any other peripheral devices within the traffic control system.

Input / Output Specifications

Nominal Voltage	120 VAC, Single Phase
Voltage Range	92 to 135 VAC
Input Frequency	60 Hz +/- 5%
Current	20 A minimum

B.4.3 Manual Bypass Switch

Furnish a manual bypass switch to provide a mechanical bypass of the UPS without any interruption of power to the intersection.

Input / Output Specifications

Nominal Voltage	120 VAC, Single Phase
Voltage Range	92 to 135 VAC
Input Frequency	60 Hz +/- 5%
Current	20 A minimum

B.4.4 Generator Transfer Switch

Furnish a generator transfer switch to automatically transfer the input to the UPS from the utility line to a portable AC generator. The switch shall break both line and neutral to the utility, and prevent back-feeding the utility lines.

Input / Output Specifications

Nominal Voltage	120 VAC, Single Phase
Voltage Range	92 to 135 VAC
Input Frequency	60 Hz +/- 5%
Current	20 A minimum

B.5 Other Equipment

Furnish all equipment, mounting hardware, wire, cable, fasteners, and connectors not otherwise specified to provide a complete and operational BBS, including but not limited to, the cable connections to the batteries.

B.6 Operation

B.6.1 Loss / Restoration of Utility Power

The BBS shall transfer the load to battery power when the utility line voltage is outside the High and Low Limits. Set the default high and low limits as 130 and 100 VAC, respectively. Operate in the Buck and Boost modes for partial line voltage correction.

For the low line voltage condition, the BBS shall return to line mode when the utility power has been restored to above 105 VAC for the specified line qualification time. This line qualification time shall be user adjustable from 3 to 30 seconds.

For the high line voltage condition, the BBS shall return to line mode when the utility power has been restored to below 125 VAC for the specified line qualification time. This line qualification time shall be user adjustable from 3 to 30 seconds. In cases where the

nominal voltage is between 125 and 130 VAC, the BBS shall return to line mode when the utility power is back to nominal.

The maximum transfer time allowed, from disruption of normal utility line voltage to stabilized inverter line voltage from batteries, shall be 65 milliseconds. The same maximum allowable transfer time shall also apply when switching from inverter line voltage to utility line voltage.

B.6.2 Battery Operation
In the event of UPS failure, battery failure, or complete battery discharge, the automatic power transfer switch shall revert to the NC (and de-energized) state, where utility power is supplying the cabinet.

Provide a temperature compensated battery charging system. The charging system shall compensate over a wide range of 2.5 to 4 mV / °C / Cell. The charger shall be rated 10 amps at 48 VDC. Batteries shall not be charged when battery temperature exceeds manufacturer's recommendations for the specific batteries being used. The charging system shall fully recharge the batteries within 20 hours.

B.7 Product Compatibility
The BBS shall be compatible with all of the following for full phase operation mode, flash operation mode, or a combination of both full and flash mode operation:

- Type 2070 controllers and cabinet components
- NEMA TS1 controllers and cabinet components
- NEMA TS2 controllers and cabinet components

The complete BBS system including batteries shall fit inside and be compatible with a NEMA type traffic control cabinet of minimum size 26-inch wide X 40-inch high X 13-inch deep and maximum size 32-inch wide X 51-inch high X 18-inch deep, with minimum 3-inches in the front and minimum 1-inch air space on the top, back, and sides of a shelf mounted UPS.

B.8 Electrical Protections
The BBS shall be equipped to prevent a malfunction feedback to the cabinet or from feeding back to the utility service per UL 1778, Section 48 "Back-feed Protection Test". The upstream back-feed voltage from the BBS system shall be less than 1 volt AC.

B.9 Maintenance
The individual BBS parts shall be easily replaced and installed (complete turnkey system with all necessary hardware). The BBS shall not require any special tools for removal or installation.

B.10 Cabinet
Furnish a non-ground mounted, aluminum, outdoor rated, NEMA type 3R traffic control cabinet of minimum size 26-inch wide X 40-inch high X 13-inch deep and maximum size

32-inch wide X 51-inch high X 18-inch deep. The size of the cabinet shall be of sufficient size to provide ample space for housing all equipment specified herein, all equipment furnished with the Wisconsin Department of Transportation (department) Uninterruptible Power Supply (UPS) specification, and all batteries. Provide a minimum clear space of 3-inches in the front of a shelf mounted UPS, and minimum 1-inch on both sides, back, and top of the UPS. Slope the top of the cabinet towards the door with a 2-inch drip lip over the door and cabinet front. All sheet metal parts shall be 0.125-inch thick aluminum of type 5052-H32. All seams shall be continuously welded.

Provide an access door on the front of the cabinet with a continuous hinge, door latch assembly with 3-point locking mechanism, #2 Corbin lock, dust cap, and two #2 keys. The door shall have a closed-cell neoprene gasket on all four edges. The continuous hinge shall be heavy gauge aluminum with ¼-inch diameter stainless steel hinge pin. Secure hinge with ¼-inch X 20 TPI stainless steel carriage bolts and stainless steel nylon locking nuts. The 3-point locking system shall have ½-inch X ¼-inch X length required latch bars and nylon rollers. Door handle shall be a ¾-inch solid stainless steel inward-turning handle with provisions for padlocking. Provide a steel rod door holder. All hardware shall be stainless steel, unless otherwise specified.

Provide ventilation louvers on the front of the cabinet of sufficient open area to provide air flow for the cabinet fan. Provide a ½-inch air filter over all the louver area. Air filter shall slide into a channel and shall be easily removed and replaced.

Provide installed a minimum of three full width and depth, aluminum shelves sufficient to hold all equipment furnished with the department's Uninterruptible Power Supply specification, and all batteries. All shelves shall have neoprene (or similar material) pads. The shelves shall not be the swing out type. The shelf locations shall be adjustable to within six inches of the top of the cabinet and 12 inches from the bottom of the cabinet. The shelves shall be capable of supporting up to 180 pounds.

B.11 Cabinet Equipment

Provide and install a power distribution terminal block for wire connections, wire size up to #8AWG, from the traffic signal cabinet. Locate the block on one side of the UPS cabinet between one and two feet from the top of the cabinet.

Provide a generator connection outlet installed on one side of the cabinet placement shall not interfere with the installation or use of batteries, UPS, or any switches.

Ventilate the UPS cabinet by means of an installed 120 VAC, 60HZ, tube axial compact type fan. The fan's free delivery airflow shall be greater than 2.83 cubic meters per minute. The magnetic field of the fan motor shall not affect the performance of control equipment. The fan bearings shall operate freely. The fan unit shall not crack, creep, warp, or have bearing failure within a 7-year duty cycle. The maximum noise level shall be less than 40 decibels. The fan unit shall be corrosion resistant. The fan shall be thermostatically controlled. Thermostat shall be set to manufacturer required settings. The fan shall be fused.

Provide a temperature sensor bonded to the pad, electrical power cord, and a thermal fuse in each power cord.

Provide a battery voltage balancer, battery cable for each battery, and interface cable of the size compatible with the battery string.

In all controller cabinets and auxiliary cabinets, the AC common, the logic ground, and the chassis ground shall be isolated from each other as detailed by NEMA Standard.

Each 120 VAC circuit that serves an inductive device, such as a fan motor or a mechanical relay, shall have a suppressor to protect the controller's solid state devices from excessive voltage surges. Such suppressors shall be in addition to the surge protector at the input power point.

B.12 Batteries

Furnish four batteries for each cabinet from one of the following batteries:

- Alpha – AlphaCell 220GXL
- Power Battery – TG12110S (Traffic Grid Series of VRLA)
- C&D Technologies – UPS12-400MR
- Approved equal

Batteries shall be newly built and fully charged when delivered.

B.13 Equipment Installation

Install the furnished BBS, batteries, and battery equipment according to manufacturer's requirements. Bolt the BBS cabinet firmly to the back or side of the traffic signal control cabinet at the direction of the department as required by the design of each signal cabinet. Use a minimum of four bolts of the size recommended by the BBS cabinet manufacturer. Use fender washers on the inside of both cabinets. Use all stainless steel hardware.

Furnish and install from the electrical service to the BBS cabinet and back to the signal cabinet, the larger of 1) #10 AWG, 600 volt, electric wire, 2) the wire size recommended by the UPS manufacturer, 3) the largest size wire used in the signal cabinet for the power connections, or 4) the wire size required by WSEC. Install the wire through a ¾-inch hole drilled between the cabinets and install two ¾-inch bushings in the hole. Provide grounding, suppressors and lightning arrestors according to the WSEC requirements.

Program and/or enter configuration settings for the equipment and make the equipment fully operational.

B.14 Certification

Provide a written certification with the cabinet delivery that the equipment meets the requirements of the plans and specifications and will fully operate the traffic signal cabinet. The certification shall be on the contractor's company letterhead, shall be addressed to both the department and the construction contractor, if there is one, and shall be signed by a

company officer authorized to legally obligate the company. Cabinet testing and quality control documents may accompany the certification.

B.15 Documentation
Submit detailed equipment layout drawings and inter-equipment wiring diagrams furnished under this specification to the department for approval. Two sets of approved equipment layout drawings and inter-equipment wiring diagrams shall be contained in a heavy-duty clear plastic envelope mounted on the inside of the front door.

For the cabinet and cabinet equipment, at the time of the delivery, furnish two printed sets, and one .pdf file on a CD-ROM or flash drive, of cabinet installation, operations, and maintenance manuals per cabinet and an itemized price list for each type of equipment, and their replacement parts. The manuals shall as a minimum include the following information: a) table of contents, b) operating procedure, c) step-by-step maintenance and trouble-shooting information for the entire assembly, d) part numbers, and e) maintenance checklists. Also provide two prints and the .dgn or CADD file of the as-built cabinet design and layout.

For the installed equipment, at the time of the delivery, furnish two printed sets, and one .pdf file on a CD-ROM or flash drive, of equipment installation, operations, and maintenance manuals per cabinet and an itemized price list for each type of equipment, their sub-assemblies, and their replacement parts. The manuals shall as a minimum include the following information for each piece of equipment: a) table of contents, b) startup procedure, c) operating procedure, d) step by step maintenance and trouble-shooting information for the entire assembly, e) circuit wiring diagrams, f) pictorial diagrams of parts locations, g) part numbers, h) theory of operation, and i) maintenance checklists. The instructional manuals shall include an itemized parts list. The itemized parts list shall include the manufacturer's name and part numbers for all components (such as IC's, diodes, switches, relays, etc.) used in each piece of equipment. The list shall include cross-references to part numbers of other manufacturers who make the same replacement parts. Also provide the .dgn CAD files for the equipment layout drawings and inter-equipment wiring diagrams.

C Construction
Install the battery backup cabinet on the side of the controller cabinet. Wire the battery backup system to the controller cabinet per the manufacturer’s recommendation. After installation have a manufacturer representative verify that the system is functioning properly.

D Measurement
The department will measure Battery Back-Up System as a lump sum unit of work, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.01	Battery Back-up System	LS

Payment is full compensation for providing an operational Battery Back-up System.

29. Traffic Signal Controller and Cabinet, Fully Actuated, 16-Phase, S. 60th St and W. Layton Ave (CTH Y), Item SPV.0105.02.

A Description

This work shall consist of furnishing and installing a traffic signal controller and cabinet conforming to NEMA TS2 2003 specifications with single-mode or multi-mode fiber optic communication as shown on the plans and as hereinafter provided.

The contractor shall deliver a completely wired controller cabinet at least 10 working days prior to planned installation date, which meets Wisconsin Department of Transportation Specifications dated March 2011 except where modified by these specifications, which is ready for installation, including all required traffic signal control equipment, and any auxiliary equipment, wiring diagrams, and manuals as called for in the specifications, to the Milwaukee County Highway Department Electrical Shop, (414) 257-6593, 10190 West Watertown Plank Road, Wauwatosa, WI 53226 for testing. Electrical Shop personnel shall be notified 48 hours (minimum) before equipment delivery.

The cabinet supplier shall submit three copies (one paper copy to remain in the cabinet, another paper copy to the Milwaukee County Chief Electrician and one .dwg digital file to the Milwaukee County Traffic Engineering Section) of the cabinet wiring diagram and prints.

B Materials

B.1 Cabinet, Power Panel, Interference and Surge Protection

Furnish a door-in-door ground mounted aluminum cabinet of clean-cut design and appearance. Provide a cabinet of minimum size 44 inches wide, minimum 24 inches deep, and minimum 52 inches to maximum 60 inches high. The size of the cabinet shall provide ample space for housing the controller, all of the associated devices which are to be furnished with the controller, all other auxiliary devices herein specified. Furnish the cabinet with a natural, uncoated, aluminum finish inside and outside.

Provide a door switch for the main cabinet door. When the door is opened the switch shall send a signal to the controller sufficient for the controller to log an alarm.

Mount a minimum of four vertical "C" channels, compatible with Unistrut channel nuts, on each interior side wall of the cabinet for the purpose of mounting the cabinet components. The channels shall accommodate spring mounted nuts or studs. Install three vertical "C" channels or three slotted rails on the interior back wall of the cabinet. All mounting channels and rails shall extend to within 7 inches of the top and bottom of the cabinets and shall be of sufficient strength to rigidly hold specified shelves and

equipment. Provide two full-width, 11-inch deep, fully adjustable, aluminum shelves to support the controller and other equipment. Mount the lower shelf at a height above the bottom of the cabinet such that the shelf not interfere with the ability to tilt the terminal facility forward on its hinges for maintenance purposes. Provide an under-shelf drawer beneath the lower shelf. The drawer shall be a minimum 20 inches wide and the full depth of the shelf. The drawer shall operate smoothly and shall have a stop to prevent inadvertently pulling the draw out of its support. Design the stop to allow purposeful complete removal of the drawer without the use of tools.

The power panel shall consist of a separate module, securely fastened to the interior right side wall of the cabinet. Wire the power panel to provide the necessary power to the cabinet, controller, MMU, cabinet power supply, and all auxiliary equipment. Manufacture the power panel from 0.090-inch, 5052-H32 aluminum. Panel layout shall facilitate field inspection and maintenance accessibility without excessive disassembly or special tools.

Provide a light, tough, transparent, weather-resistant, non-yellowing, thermoplastic cover, rigidly mounted over the full power panel, with access holes for circuit breakers and other equipment, and open on the sides for ventilation. House in the power panel the following vertically mounted, single pole, 120 volts AC, 60 Hertz, bolt on circuit breakers, with the ON position being up:

- One 50-amp main breaker. This breaker shall supply power for all cabinet functions through one of the other breakers listed below. This breaker shall feed a signal bus supplied through a solid state bus relay and a radio interference line filter. The bus relay, in all cases, shall be a solid state contactor and shall not be jack mounted.

- One 15-amp auxiliary breaker. This breaker shall supply power to the fan and heater**.**

- One 10-amp auxiliary breaker. This breaker shall supply power for control equipment only: controller, MMU, and cabinet power supply.

- One 30-amp auxiliary breaker for video detection.

Breakers shall be thermal magnetic type, UL or NRTL listed, with a minimum of 22,000 amp interrupting capacity. Power the cabinet light through the GFI fuse, not a circuit breaker.

Equip each control cabinet with a single radio interference suppressor (RIS) of sufficient ampere rating to handle the load requirements. Install the RIS at the input power point. The RIS shall minimize interference in both the broadcast and the aircraft frequencies, and shall provide a maximum attenuation of 50 DB over a frequency range from 200 KHZ to 75 MHZ, when used in connection with normal installations. The RIS shall be hermetically sealed in a substantial metal case filled with a suitable insulating

compound. The terminals shall be nickel-plated brass studs of sufficient external length to provide space to connect two #8 AWG wires and shall be so mounted that they cannot be turned in the case. Ungrounded terminals shall be properly insulated from each other, and shall maintain a surface leakage distance of not less than 6.35 mm between any exposed current conductor and any other metallic parts. The terminals shall have an insulation factor of 100-200 megohms dependent upon external conditions. The RIS shall be rated at minimum 50 amperes. Design the RIS for operation on 115 VAC +/- 10%, 60HZ, single-phase circuits, and to meet the standards of UL and Radio Manufacturer's Association.

Provide a normally-open, 60 amp, solid state relay.

The surge suppressor protecting the controller, conflict monitor, and detection equipment shall consist of two stages:

The design of the stage one suppressor shall be modular and it shall be installed in such a way that it may be removed and replaced with the intersection under power and in flashing operation. It shall have a permanently mounted and wired base and a removable circuit package. The status of the stage one surge protector shall be continuously and remotely monitored by alarm circuit 2. The stage one suppressor circuit package shall have two LED indicators for power ‘on’ and suppression ‘failure’ and shall be according to the following:

Stage One Suppressor	
Properties	Criteria
"Plug-in" suppression module	12 pin connector assembly
Clamp Voltage	250 V at 20,000 A typical
Response time	Less than 5 nanoseconds
Maximum Continuous service current	15 A at 120 VAC 60 Hz
High Frequency noise attenuation	At least 50 dB at 100,000 Hz
Operating temperature	-40 to 185 °F

The stage two, high speed, solid state, transient suppressor shall protect the system from transient over voltage without affecting power at the load. It shall suppress transients of either polarity and form either direction (source or load). The suppressor shall have a visual ‘on’ indicator lamp when the unit is operating normally. It shall also have a UL plastic enclosure, a four position terminal strip for power connection, and it shall utilize silicon avalanche diode technology. The stage two suppressor shall be according to the following:

Stage Two Suppressor	
Properties	Criteria
Nominal service voltage	120 V at 50/60 Hz
Maximum voltage protection level	± 330V
Minimum voltage protection level	± 220 V ± 5 %

Minimum surge current rating	700 A
Stand by power	Less than 0.5 Watts
Hot to neutral leakage current at 120 V RMS	Less than 5 µA
Maximum Response Time	5 nanoseconds
Operating and Storage temperature	-4 to 122 °F

Ventilate the cabinet by means of a 120 VAC, 60HZ, tube axial compact type fan located in the top of the cabinet plenum. The fan's free delivery airflow shall be greater than or equal to 100 cubic feet per minute. The magnetic field of the fan motor shall not affect the performance of control equipment. The fan bearings shall operate freely. The fan unit shall not crack, creep, warp, or have bearing failure within a seven year duty cycle. The maximum noise level shall be less than 40 decibels. The fan unit shall be corrosion resistant. The thermostat's turn on setting shall be adjustable from 90 to 120 degrees F. The fan shall run until the cabinet temperature decreases below the turn-on temperature setting by approximately 30 degrees F. The fan shall be fused.

Provide two each, one on the left side of the cabinet and one on the right side of the cabinet of the following:

a. Minimum 8-position neutral bus bar capable of connecting three #12 AWG wires per position.
b. Minimum 6-position ground bus bar capable of connecting three #12 AWG wires per position.

Provide 5-20R Outlets at these locations:

a. On the right side above the power panel provide one Quad.
b. On the left side, at approximately the height of the upper shelf, provide one Quad.
c. On the back side of the police panel or on the power panel provide a GFCI Duplex.

Locate the following switches on a maintenance panel on the inside of the cabinet door:

a. Controller On/Off
b. Stop Time (Three Position)

Protect these switches with a switch guard to prevent accidental throwing of the switch. The guard shall be a single piece covering only the sides of the switch and shall have no moving parts.

Locate the following behind the police access door:

a. Signal/Off Switch
b. Flash/Normal Switch
c. Hand/Auto Switch
d. Coiled hand control and cable

Position	Switch Label	Function
Upper	Stop Time	Place stop time on the controller
Center	Run	Remove the stop time input to the controller
Lower	Normal	Connects the MMU to the controller stop time input

The above switches shall function as follows:
Off: Signals Dark

Signal: Signals On and operating as follows:

	Auto	Hand
Flash:	Signals Flash	Signals Flash
Normal:	Signals Normal	Signals Advance by use of hand control

A 250 W heater shall be installed on the interior right side wall in the lower back corner of the cabinet with a protective ventilated cover and a thermostat that is adjustable from 0 to 60 degrees F at a minimum. It shall be located properly to prevent damage to equipment and wiring.

B.2 Terminal Facilities
The terminal facility panel shall incorporate a relay to remove +24VDC from the common side of the load switches when the intersection is placed into mechanical flash. The relay shall have a momentary push button to apply power to the load switch inputs for the ease of troubleshooting.

B.3 General Peripheral Equipment Notes
The control cabinet is peripheral to the traffic signal controller and MMU and shall be fully compatible with NEMA TS2 the latest version. The equipment items included shall be, but not necessarily limited to, cabinet, microprocessor controller, MMU, BIUs, shelf-mounted detector racks, detector amplifiers as needed, power supply, load switches, flash relays, power distribution panel, fiber optic communication components necessary to communicate via ethernet, interior cabinet wiring, and other associated electrical and electronic equipment interior to the control cabinet that is necessary to provide the type of operation described in these specifications. The intersection cabinet shall be fully wired for phases 1 through 8; pedestrian phases 2, 4, 6 and 8; 4 overlaps and ready for operation. All functions as specified by TS2 – 2003 shall be wired and ready for use.

B.4 Fiber Optic Ethernet Communications
The fiber optic communication components shall use two small form pluggable (SFP) 1GB/s ports and optics for the fiber optic communication type shown in the plans and shall obtain power from one of the 5-20R outlets. There shall be a minimum six RJ45 ethernet ports. The switch shall be capable of IPv4 and IPv6 communications. A cat 5e cable shall be provided for each Ethernet capable device to be installed in the cabinet.

B.5 Detection and Card Rack(s)
The cabinet shall be equipped with one TS2 detector rack capable of handling 4 channels of video detection inputs.

If the plans call for inductive loop detection, modify the number of channels of detection inputs on the detector racks to meet the requirements of the intersection such that each loop detector is installed on an individual channel. If multiple racks are required they shall be capable of handling the same number of inputs. Provide a sufficient number of detector amplifiers to handle the number of detectors at the intersection. When required for proper cabinet operation provide a detector interface panel sized large enough to handle the requirements of the intersection. Interface panels shall allow for the connection of 32 or 16 independent field loops. The panels shall have barrier strip type terminals using 8-32 screws and be rated for 20 inch pounds of torque. Provide a ground bus terminal between each loop pair terminal to provide a termination for the loop lead-in cable ground wire. Secure the interface panels to a mounting plate attached to the left interior side wall of the cabinet.

The cabinet shall be EVP ready, with a position in a TS2 detector rack for an EVP card and all items necessary to enable the use of confirmation beacons.

B.6 Malfunction Management Unit (MMU)
The MMU shall meet the NEMA TS2-2003 Specification and shall be a NEMA TS2 EDI MMU-16LEip, Reno MMU-1600G, PEEK or approved equal. Built in ethernet communication shall be provided with the MMU. Any computer programs necessary for communication with the MMU shall be provided.

B.7 Controller
The controller shall be an Eagle EPAC M51, Econolite ASC/3 or PEEK traffic signal controller. The controller shall be TS2-Type 1, fully traffic actuated, solid state, digital microprocessor controller with built in ethernet communication, capable of providing the number and sequence of phases, overlaps, and any special logic as described herein and shown on the accompanying plan. The controller shall be ready to be programmed by the Milwaukee County engineer and shall be mounted in a control cabinet to operate as a complete and functioning intersection traffic signal control system. Dual ring, programmable for both single and dual entry concurrent timing, sixteen-phase frame or equivalent shall be provided. Volume density and pedestrian timing shall be provided for all phases. MUTCD flashing capability and NTCIP communication capability shall be provided. All controls shall be in accordance to the accompanying plans and with NEMA TS2-2003 standards and NTCIP Level 2 as defined by Section 3.3.6 of NEMA TS2-2003. NTCIP v02.06 capabilities shall include all NTCIP mandatory and optional objects. All NEMA TS2 and NTCIP Level 2 objects shall be programmable from computer software that will be provided to the Milwaukee County Department of Transportation and from the controller's keypad. Updates to controller firmware shall be made available to Milwaukee County upon release with no additional charge. A controller firmware update shall be accomplished via a download from a standard Windows XP/Vista/7 laptop with

the software to perform such an update provided to Milwaukee County at no additional charge. The controller shall have a datakey or USB port which is capable of storing the entire timing program. The capability for flashing yellow left turn arrow operations shall be provided via a programming change. The intersection controller unit shall be capable of up to 16-phase operation plus 4 programmable overlaps regardless of whether preemption, coordination or the special programming is used.

C Construction

The contractor shall not mount the cabinet on the foundation until the meter breaker pedestal has been completed by the utility company if required. After the contractor has mounted the cabinet on the cabinet foundation, he/she shall connect all field wiring inside the cabinet and test the signal circuits for correct operation. The contractor shall connect and test the signal circuits outside the cabinet as directed by the engineer. All work shall conform to the latest version of the Wisconsin State Electrical Code (WSEC). Connecting and testing signal circuits shall be considered part of this item of work.

Use each conduit entering the cabinet to its fullest before using a different conduit. Plug any unused conduit.

D Measurement

The department will measure Traffic Signal Controller and Cabinet, Fully Actuated, 16-Phase (Location), as a single complete lump sum unit of work, acceptably completed in accordance to the contract and to the satisfaction of the Milwaukee County Traffic Engineer or Milwaukee County Chief Electrician.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.02	Traffic Signal Controller and Cabinet, Fully Actuated, 16-Phase, S. 60th St. and W. Layton Ave (CTH Y)	LS

Payment is full compensation for furnishing and installing the traffic signal controller and cabinet with fiber optic communication, switches for flashing operation, and a full complement of devices as are necessary to assure that the controller and cabinet will perform the said functions.

30. Emergency Vehicle Preemption System, Item SPV.0105.03.

A Description

This work shall consist of furnishing and installing an Emergency Vehicle Preemption (EVP) System at a single intersection, as shown on the plans and as hereinafter provided.

B Materials

The Emergency Vehicle Preemption System shall include Opticom discriminator Model 454, Model 722 detectors, and Model 138 detector cable. This equipment shall be furnished

and installed by the contractor. The discriminator shall be mounted in a card rack included as part of the signal cabinet.

C Construction

Detectors shall be mounted on the mast arms as shown on the Plans. The traffic signal mast arms and poles shall be drilled, and tapped to accommodate the mounting of the detector units as shown in the Plans. The installation method shall be approved by the engineer.

In the event, at installation, a noticeable obstruction is present in line with the detector, the contractor shall be obligated to advise the engineer before installation.

Unless otherwise directed by the engineer, the detector shield tube shall be installed with the drain hole at the bottom.

There shall be NO detector cable splices from the detector assembly to the controller terminations. At each pull box a minimum of 20 feet of extra cable shall be coiled.

The EVP detector cables shall be routed to the controller. Each lead shall be appropriately marked as to which street or avenue it is associated. The contractor will perform all terminations inside the cabinet.

The EVP as specified and shown in the Plans shall be complete in place, tested, and in full operation.

D Measurement

The department will measure Emergency Vehicle Preemption System as a single lump sum unit of work, complete in place per intersection, acceptably completed.

E Payment

The department will pay for measured quantities at the contract lump sum price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.03	Emergency Vehicle Preemption System	LS

Payment is full compensation for furnishing and installing all equipment, cabling, necessary additional items, and for testing and setting up the system.

31. Vehicular Video Detection System, S. 60th St. and W. Layton Ave (CTH Y), (4 Cameras), Item SPV.0105.04.

A Description

This work shall consist of furnishing, installing and placing into operation a vehicular video detection system (VVDS) as shown on the plans, and as directed by the engineer in the field.

B Materials

This specification sets forth the minimum requirements for a system that detects vehicles on a roadway by processing video images and providing detection outputs to a traffic signal controller. The materials shall also include all brackets, mounting hardware, cable, terminations, interface panels, and all other incidentals for the installation of the video detection equipment. This equipment shall meet the NEMA environmental, power and surge ratings as set forth in NEMA TS2 specifications. The cameras shall be Autoscope Terra cameras.

All video detection equipment, components, and terminations supplied under this item shall be fully compatible with Eagle EPAC 300 M51 and Econolite ASC/3 traffic signal controllers. The system architecture shall fully support Ethernet networking of system components. All required interface equipment needed for transmitting and receiving data and video shall be provided for with the VVDS.

B.1 Hardware

The machine vision system hardware shall consist of three components: 1) a color, zoom, Machine Vision Processor (MVP) sensor 2) a modular cabinet interface unit 3) a communication interface panel. Additionally, an optional personal computer (PC) shall host the server and client applications that are used to program and monitor the system components. The real-time performance shall be observed by viewing the video output from the sensor with overlaid flashing detectors to indicate the current detection state (on/off). The MVP sensor shall optionally store cumulative traffic statistics internally in non-volatile memory for later retrieval and analysis.

The MVP shall communicate to the modular cabinet interface unit via the communications interface panel and the software applications using the industry standard TCP/IP network protocol. The MVP shall have a built-in, Ethernet-ready, Internet Protocol (IP) address and shall be addressable with no plug in devices or converters required. The MVP shall provide standard MPEG-4 streaming digital video.

The communication interface panel shall provide four sets of three electrical terminations for three wire power cables for up to eight MVP sensors that may be mounted on a pole or mast arm with a traffic signal cabinet or junction box. The communications interface panel shall provide single-point Ethernet connectivity via RJ45 connector for communication to and between the modular cabinet interface module and the MVP sensors.

B.2 Machine Vision Processor Sensor

The MVP sensor shall be an integrated imaging color CCD array with zoom lens optics, high-speed, dualcore image processing hardware bundled into a sealed enclosure. The CCD array shall be directly controlled by the dual-core processor, thus providing high-quality video for detection that has virtually no noise to degrade detection performance. It shall be possible to zoom the lens as required for setup and operation. It shall provide JPEG video compression as well as standard MPEG-4 digital streaming video with flashing detector overlay. The MVP shall provide direct real-time iris and

shutter speed control. The MVP image sensor shall be equipped with an integrated 22x zoom lens that can be changed using either configuration computer software. The digital streaming video output and all data communications shall be transmitted over the three-wire power cable.

B.3 Modular Cabinet Interface Unit

The modular cabinet interface unit shall provide the hardware and software means for up to eight (8) MVP sensors to communicate real-time detection states and alarms to a local traffic signal controller. It shall comply with the electrical and protocol specifications of the detector rack standards. The card shall have 1500 Vrms isolation between rack logic ground and street wiring. The modular cabinet interface unit shall be a simple interface card that plugs directly into a 170 input file rack or a NEMA type C or D detector rack. The modular cabinet interface unit shall occupy only 2 slots of the detector rack. The modular cabinet interface unit shall accept up to 16 phase inputs and shall provide up to 24 detector outputs.

B.4 Communications Interface Panel

The communications interface panel shall support up to eight MVPs. The communications interface panel shall accept 110/220 VAC, 50/60 Hz power and provide predefined wire termination blocks for MVP power connections, a Broadband-over-Power-Line (BPL) transceiver to support up to 10MB/s interdevice communications, electrical surge protectors to isolate the modular cabinet interface unit and MVP sensors, and an interface connector to cable directly to the modular cabinet interface unit.

The interface panel shall provide power for up to eight (8) MVP sensors, taking local line voltage 110/220 VAC, 50/60 Hz and producing 110/220 VAC, 50/60 Hz, at about 30 watts to each MVP sensor. Two ½-amp SLO-BLO fuses shall protect the communications interface panel.

B.5 Functional

The vision sensor shall be able to be programmed with a variety of detector types that perform specific functions selectable by software. Detector types shall include stopline detectors capable of providing presence of moving vehicle detection based upon phase status, presence detectors, directional presence and input detectors. Additionally, phase green or red shall be displayed.

The unit shall monitor video contrast and apply video-loss timing parameters to the output by implementing minimum, maximum, or user defined fixed time recall for the assigned phase(s). The detector shall be capable of having Boolean logic applied to multiple detectors or a minimum number of detectors out of a total present, prior to placing a call.

B.6 Minimum detector requirements

Minimum detector requirements shall include the following:

a. Count detection – provide bi-directional vehicle counts, occupancy, and headway, and provide means to output these traffic volume statistics.
b. Speed and classification detection – define vehicle by speed, classification and length, with a minimum of 3 different categories for each.
c. Presence detection – indicate presence of a vehicle, stopped vehicle, or a vehicle traveling in the wrong direction.
d. Detector function combination – monitor outputs of multiple detectors via Boolean logic functions.
e. Label display – provide information on the video output and pass input information to other detectors.
f. Detector Station – collect and report traffic data gathered over specified time intervals including 1, 5, 10, 15, 30, 60-minute intervals and per cycle.
g. Incident detection – monitor traffic parameters for conditions that indicate an incident has occurred, such as an accident or a stalled vehicle that results in a sudden reduction in roadway capacity or throughput.
h. Schedulers – define plans that can be used by other detectors to specify different parameters for each time-of-day plan.
i. Contrast Loss detection – monitor the quality of the video image that the vision sensor is processing.
j. Speed Alarm – generate alarm outputs based on user-defined algorithms based on vehicle speed.

B.7 Power

The vision sensor shall operate on 110/220 VAC 50/60 Hz at a maximum of 25 watts. The camera and processor electronics shall consume a maximum of 10 watts. The remaining 15 watts shall support an enclosure heater.

B.8 Sensor Operations Log

The vision sensor shall maintain a non-volatile operations log, which minimally contains:

a. Revision numbers for the current vision sensor hardware and software components in operation.
b. Title and comments for the detector configuration.
c. Date and time the last detector configuration was downloaded to the vision sensor.
d. Date and time the operation log was last cleared.
e. Date and time communications were opened or closed with the vision sensor.
f. Date and time of last power up.
g. Time stamped, self-diagnosed hardware and software errors that shall aid in system maintenance and troubleshooting.

B.9 Sensor Vehicle Detection Performance

The real time detection performance of the vision sensor shall be optimized by following the guidelines for the traffic application including vision sensor mounting location; the number of traffic lanes to monitor; the sizing, placement, and orientation of vehicle

detectors; traffic approaching and/or departing from the sensor's field of view; and minimizing the effects of lane changing maneuvers.

B.10 Detection Zone Placement

The video detection system shall provide flexible detection zone placement anywhere and at any orientation within the field of view of the vision sensor. Preferred detector configurations shall be detection zones placed across lanes of traffic for optimal count accuracy, detection zones placed parallel to lanes of traffic for optimal presence detection accuracy of moving or stopped vehicles. A single detection zone shall be able to replace one or more conventional detector loops connected in series. Detection zones shall be able to be overlapped for optimal road coverage. In addition, selective groups of detectors shall be able to be logically combined into a single output by using optional delay and extend timing and signal state information. Optimal detection shall be achieved when the vision sensor placement provides an unobstructed view of each traffic lane where vehicle detection is required.

B.11 Detection Zone Programming

Placement of detection zones shall be by means of a PC with a Windows XP or Vista operating system, a keyboard, and a mouse. The PC monitor shall be able to show the detection zones superimposed on images of traffic scenes.

The detection zones shall be created by using a mouse to draw detection zones on the PC monitor. Using the mouse and keyboard it shall be possible to place, size, and orient detection zones to provide optimal road coverage for vehicle detection. It shall be possible to download detector configurations from the PC to the MVP sensor and cabinet interface module, to retrieve the detector configuration that is currently running in the MVP sensor, and to back up detector configurations by saving them to the PC fixed disks or other removable storage media.

The supervisor computer's mouse and keyboard shall be used to edit previously defined detector configurations to permit adjustment of the detection zone size and placement, to add detectors for additional traffic applications, or to reprogram the MVP sensor for different traffic applications or changes in installation site geometry or traffic rerouting.

B.12 Optimal Detection

The video detection system shall provide optimal detection of vehicle passage and presence when the vision sensor is mounted 30 feet or higher above the roadway, the image sensor is adjacent to the desired coverage area and the distance to the farthest detection zone locations is not greater than ten times the mounting height of the vision sensor.

The vision sensor shall be able to view either approaching or departing traffic or both in the same field of view. The vision sensor, when placed at a mounting height that minimizes vehicle image occlusion and equipped with a lens to match the width of the road shall be able to monitor a minimum of 6 traffic lanes simultaneously.

B.13 Detection Zone Operation

The vision sensor's real-time detection operation shall be verifiable through the following means:

a. View the video output of the sensor with any standard video display device (monitor).
b. The video output of the vision sensor (differential twisted pair) shall be capable of selectively transmitting:
    1. Camera video only.
    2. Analog video overlaid with the current real-time detection state of each detector.
    3. Camera video with overlaid, scaled crosshairs that are used for aiming the sensor (during installation).
    4. Individual detectors shall have the option of being hidden.
c. Electrically monitor assigned contact closure pinouts from a detector port master such as a detector rack interface card. Each pin of an interface card shall have one associated LED output to reflect its output state.
d. View the associated output LED state on the detector port master:
    1. An LED shall be ON when its assigned detector output or signal controller phase input is on.
    2. An LED shall be OFF when its assigned detector or signal controller input is off.

B.14 Count Detection Performance

Using a vision sensor installed within the optimal viewing specifications described above for count station traffic applications the system shall be able to accurately count vehicles with at least 96% accuracy under normal operating conditions (day and night) and at least 93% accuracy under adverse conditions. Adverse conditions are combinations of weather and lighting conditions that result from shadows, fog, rain, snow, etc. The data shall be optionally stored internally in non-volatile memory for later retrieval and anaylsis.

B.15 Demand Presence Detection Performance

Using a vision sensor installed within the optimal viewing specifications described above for intersection control applications the system shall be able to accurately provide demand presence detection. The demand presence accuracy shall be based on the ability to enable a protected turning movement on an intersection stop line, when a demand exists. The probability of not detecting a vehicle for demand presence shall be less than 1% error under all operating conditions. In the presence of adverse conditions, the vision sensor shall minimize extraneous (false) protected movement calls to less than 7%.

B.16 Speed Detection Performance

The vision sensor shall accurately measure average (arithmetic mean) speed of multiple vehicles with more than 98% accuracy under all operating conditions for approaching and departing traffic. The average speed measurement shall include more than 10 vehicles in the sample to ensure statistical significance. Optimal speed detection performance requires the sensor location to follow the specifications described above for count station traffic applications with the exception that the sensor must be higher than 40 feet. The

vision sensor shall accurately measure individual vehicle speeds with more than 95% accuracy under all operating conditions for vehicles approaching the sensor (viewing the rear end of the vehicles). These specifications shall apply to vehicles that travel through both the count and speed detector pair and shall not include partial detection situations created by lane changing maneuvers.

C Construction

The Vehicular Video Detection System shall be installed by supplier factory-certified installers and as recommended by the supplier and documented in installation materials provided by the supplier.

On monotube poles located in the terrace place the camera on a riser bracket between the furtherest and middle signal heads on the arm and feed the wire through a hole drilled on the bottom of the arm. On a monotube poles located in the median place the camera bracket directly on the side of the pole facing traffic between the luminare arm mounting points and feed the wire through the top cap of the pole and secure using cable ties. In both cases provide a drip loop.

C.1 Sensor Electrical

The video output of the vision sensor shall be isolated from earth ground. All video connections from the sensor to the interface panel shall also be isolated from earth ground. The video output communication, and power stages of the sensor shall include transient protection to prevent damage to the sensor due to voltage transients occurring on the cable leading from the vision sensor to other field terminations. The vision sensor shall have passed requirements for and received the CE mark. The power to the sensor shall be fused in the controller cabinet. Cable used between the vision sensor and the traffic control cabinet interface shall be a continuous unbroken run. This cable shall follow all local electrical codes, and be suitable for installation in conduit or overhead with appropriate span wire.

C.2 Auxiliary Equipment

The system shall be supplied with a color 10.4-inch LCD monitor to display a camera field of view with detection areas overlaid. The monitor shall have a contrast ratio of 300:1 and shall have a minimum resolution of 640 x 480. This monitor shall include sufficient cable and terminals to either be used in the controller cabinet or from within the engineer or technician’s vehicle. All camera field-of-view displays shall also be viewable in real time with the use of a laptop computer connected to the video detection system.

C.3 Training and Support

The supplier of the video detection system shall provide two days of training to maintenance and engineering personnel in the operation, setup, and maintenance of the video detection system.

The supplier shall maintain an ongoing program of technical support for the video detection system. This technical support shall be available via telephone, or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale for on-site technical support services.

The supplier shall provide a two-year warranty on the video detection system from the date of installation. During the warranty period, technical support shall be available from the supplier via telephone within four hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers. Updates to the video detection system software shall be available from the supplier without charge.

D Measurement

The department will measure Vehicular Video Detection System (Location) (4-Cameras) as each individual system at each intersection, acceptably completed.

F Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.04	Vehicular Video Detection Ssytem S. 60th St. and W. Layton Ave (CTH Y) (4-Cameras)	LS

Payment is full compensation for furnishing and installing all equipment, cabling, mounting each camera, necessary additional items, and for testing and setting up the system.

32. Fiber Optic Communication System Integration, Documentation and Testing, Item SPV.0105.05.

A Description

This special provision describes Fiber Optic Communication System Integration, Documentation and Testing.

B Materials

Provide materials as called for in standard spec 670.2.

C Construction

C.1 System Integration

Install the fiber optic jumpers to provide communications with the ethernet switch in the cabinet to the termination panel upon termination of the fiber in each cabinet. Furnish and install a termination panel no larger than 7 inches in length or height and no larger than 2 inches in width.

Proof of qualification to do system integrator work shall be a minimum of 2 years experience in installation, maintenance, integration, or service of fiber optic cable including splicing and termination. Provide documentation of work history and training that includes a minimum of one 4-day class on fiber optic equipment installation conducted by a major manufacturer of fiber optic equipment, or a FOA certification as a fiber optic technician.

Meet with the Milwaukee County Traffic Engineering Department at least ten working days prior to the beginning of any fiber optic splicing being performed under the contract to discuss the details of all fiber splicing and make changes if required. Contact Mr. Dan Murphy, daniel.murphy@milwcnty.com or (414) 278-4842.

The cabinet devices will be programmed by the device providers or Milwaukee County.

C.2 Documentation

The department will not consider the project complete and accepted as final under 105.11.2.4 until after the following is provided:

- One electronic copy of the ITS documentation of the file type stated for each item. The ITS documentation includes but is not limited to the following:
    - Maintenance procedures manuals: submit a manual containing detailed preventive and corrective maintenance procedures for each type or model of equipment furnished in the work. Electronic format shall be .pdf.
    - As-built drawings: submit final as-built drawings that detail the final placement of all conduit, cabling, equipment, and geometric modifications within the contract. Provide all electronic documentation in .dwg format. The department will review the as-built drawings for content and electronic format. Modify both the content and format of as-built drawings until meeting all requirements.
    - -Testing Documentation for each terminated fiber. Provide the test results from the tests required under the fiber optic cable item in this contract. Electronic format shall be .pdf.

Two copies of the following, one as hard copies and one in .dwg format:

- Cabinet fiber optic wiring diagram: submit a cabinet fiber optic wiring diagram, identified by location for each cabinet. Include fiber optic conductor and cable connections and termination information that clear states the direction the fiber is heading and next termination location. Place one copy of the fiber optic wiring diagram in a weatherproof holder in the cabinet.

Deliver the electronic copies to the Milwaukee County Traffic Engineering Department or engineer via CD, FTP site or other method as agreed upon by the engineer.

C.3 Testing
Testing shall be performed by a certified fiber optic technician as defined by standard spec 670.3.2.2. Test the fiber as described in the fiber optic cable item. Provide all equipment for this testing.

D Measurement
The department will measure Fiber Optic Communication System Integration, Documentation and Testing as a single lump sum unit of work, acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.05	Fiber Optic Communication System Integration, Documentation and Testing	Each

Payment is full compensation for providing specified expertise, assistance, and documents. The department will pay separately for other ITS work under the various bid items of standard spec 671 through standard spec 678. The department will not pay for removing, replacing, and reinstalling work performed by non-certified technicians as required in this item and under standard spec 670.3.2.2.

33. Remove Traffic Signal Equipment S. 60th St. and W. Layton Ave (CTH Y), Item SPV.0105.06.

A Description
This special provision describes removing and salvaging existing traffic signal hardware and equipment at the intersection of S. 60th Street and W. Layton Avenue (CTH Y) in accordance to the pertinent provisions of standard spec 204 and as hereinafter provided. Specific removal items are noted on the plans, removing concrete bases and removing pull boxes are covered under separate removal items.

B (Vacant)

C Construction
Arrange for de-energizing of any traffic signals, as needed, with the local electrical utility after receiving approval from the engineer that existing traffic signals can be removed.

Milwaukee County assumes that all equipment is in good condition and in working order prior to the contractor's removal operation. Prior to removal, inspect and provide a list of any damaged or non-working traffic signal equipment to the engineer for Milwaukee County's concurrence. Any equipment not identified as damaged or not working, prior to removal, shall be replaced by the contractor at no cost to Milwaukee County.

Notify Stanley Jackson, Milwaukee County Traffic Signal Electrical Shop, at (414) 257-6593 at least five working days prior to the removal of the traffic signals. Contractor shall not remove existing traffic signal equipment until Milwaukee County inspects and approves temporary traffic signals. Complete the removal work as soon as possible following the shutdown of this equipment.

Remove all standards and poles from their concrete footings and disassemble out of traffic. Remove the signal heads, push buttons, mast arms, luminaires, wiring/cabling and traffic signal mounting devices from each signal standard arm or pole. Ensure that all access hand-hole doors and other associated hardware remain intact. County forces will remove the controller, MMU, communications equipment and video detection equipment from the cabinet. The contractor shall remove the cabinet from the footing after county forces have removed all equipment that is loose on shelves within the cabinet. Dispose of all cable and wiring off the public right-of-way in a manner consistent with state and federal regulations. Deliver the remaining materials to the Milwaukee County Traffic Signal Electrical Shop located at 10190 W Watertown Plank Road, Wauwatosa, WI 53226.

D Measurement

The department will measure Remove Traffic Signal Equipment (Location) as a single lump sum unit of work at the intersection, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item.

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.06	Remove Traffic Signal Equipment S. 60th St. and W. Layton Ave (CTH Y)	LS

Payment is full compensation for removing and disassembling traffic signals; for scrapping of some materials; for disposing of scrap material; and for delivering the requested materials to the Milwaukee County Traffic Signal Electrical Shop.

34. Accessible Pedestrian Push Button System, Item SPV.0105.07.

A Description

This item shall consist of vandal resistant Accessible Pedestrian Signal and push button assembly that provides a vibro-tactile ADA and MUTCD compliant 2” push button with a raised directional arrow. All sounds are emitted from inside the unit via a weatherproof speaker. The unit shall use 2 wires and interface with a single control unit located in the traffic control cabinet.

B Material
Furnish pedestrian push buttons conforming to all of the following requirements:

Audible Pedestrian Signal Push Button

1. Sunlight visible "Red LED" lights when the button is pushed and remains on until the walk phase goes into effect.

2. Audible "Tick" sound is heard each time the button is pushed, as well as tactile feedback given.

3. Extended push button can increase volumes, and/or mute all sounds except those on actuated crosswalk.

4. All audible sounds automatically adjust in volume in relation to ambient noise level. Audible volume level over ambient noise shall be adjustable up to 10 dB.

5. Audio Amplifier Power Output: 15 W, 8 ohm, weatherproof.

6. Provide separate volume controls for locator tone, walk message, Clearance and extended button volumes.

7. Volume Control Automatic Adjustment Range: 35 dB max.

8. Microphone For Ambient Noise approximate frequency range: 170 Hz to 2.3 kHz.

9. Options programmable from computer: Walk Sound, Walk Message, Rest In Walk, Location Message, Extended Push Activation and Locating Tone.

10. Audible Locating Tone: All tones shall meet MUTCD requirements.

11. Option standard locating tone, custom sound or verbal count down during PED Clearance and multiple voice message languages. Provide custom walk message, direction of travel and/or emergency vehicle warning message.

12. All sounds are synchronized. Sound alternate in front of the pedestrian and behind the pedestrian during the walking and/or ped clearance phase ("Ping Pong" feature).

13. Temperature Range: -40 degrees F to 165 degrees F.

14. Wind sensor to prevent runaway volume during windy conditions.

15. System can self-test and fault report to a remote site for real-time monitoring and system maintenance. Conflict Detect: WALK indication is ignored in the event of a WALK/DON'T WALK conflict.

16. Pedestrian Push Button Interface accepts 12 to 48 AC/DC. Capable of global configuration changes and/or single unit changes.

17. Frame: cast aluminum, powder coated black.

18. Face Plate: aluminum, powder coated, painted black background.

19. Arrow Push Button: aluminum, powder coated. Direction of arrow can adjust to one of four directions.

20. Push Button: ADA compliant, cast aluminum, nickel plated, powder coated. Vibrator Power shall be 15 VDC pulsed. Operates during walk interval only. Speaker: 8 ohm, 15 W MAX, weather proof.

21. Units shall be programmable from a standard Windows 7 laptop through the pedestrian control unit. If software is required for the programming of the units it shall be incidental to the contract.

Pedestrian Control Unit

The control unit is the power supply and signaling interface between the existing intersection traffic controller and the pedestrian push button unit. The pedestrian control unit shall control up to 16 push button units and 4 pedestrian phases. The pedestrian control unit shall be housed inside the existing traffic controller cabinet and powered by the AC supply mains (115 VAC). Any cable or equipment between the control unit and the pedestrian button field wiring shall be considered incidental to the contract.

1. Pedestrian Walk/Don't Walk Inputs; Optically Isolated 80 – 150 Volts AC/DC 5mA Maximum.

2. General Purpose Outputs and Pedestrian Outputs; Optically Isolated 36 Volts AC/DC Peak, .3A Solid State Fused Contact Closure.

3. Fault Output; Normally Open and Closed Relay Contacts 125 Volts AC/DC 1A Maximum.

4. 4 Phase Pedestrian Push Button Power Output; Nominal 22 Volts DC, Short Circuit Protected – Auto Recovering.

5. General Purpose Inputs; 10 – 36 Volts AC/DC Peak 10mA Maxium, Optically Isolated.

6. Pedestrian control unit shall have an Ethernet port and shall be IP addressable for communications to programming computer.

C (Vacant)

D Measurement

The department will measure Accessible Pedestrian Push Button System as a single lump sum unit of work at the intersection, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.07	Accessible Pedestrian Push Button System	LS

Payment is full compensation for furnishing and installing all materials plus all labor, tools, equipment and incidentals necessary to complete the work in accordance to the plans and contract.

ADDITIONAL SPECIAL PROVISION 4

Payment to First-Tier Subcontractors

Within 10 calendar days of receiving a progress payment for work completed by a subcontractor, pay the subcontractor for that work. The prime contractor may withhold payment to a subcontractor if, within 10 calendar days of receipt of that progress payment, the prime contractor provides written notification to the subcontractor and the department documenting "just cause" for withholding payment.

The prime contractor may also withhold routine retainage from payments due subcontractors.

Payment to Lower-Tier Subcontractors

Ensure that subcontracting agreements at all tiers provide prompt payment rights to lower-tier subcontractors that parallel those granted first-tier subcontractors in this provision.

Release of Routine Retainage

After granting substantial completion the department may reduce the routine retainage withheld from the prime contractor to 75 percent of the original total amount retained.

When the Department sends the semi-final estimate the department may reduce the routine retainage withheld from the prime contractor to 10 percent of the original total amount retained.

Within 30 calendar days of receiving the semi-final estimate from the department, submit written certification that subcontractors at all tiers are paid in full for acceptably completed work and that no routine retainage is being withheld. The department will pay the prime contractor in full and reduce the routine retainage withheld from the prime contractor to zero when the department approves the final estimate.

This special provision does not limit the right of the department, prime contractor, or subcontractors at any tier to withhold payment for work not acceptably completed or work subject to an unresolved contract dispute.

ADDITIONAL SPECIAL PROVISION 6

ASP 6 - Modifications to the standard specifications

Make the following revisions to the standard specifications:

450.3.2.1 General

Replace the entire text with the following effective with the January 2015 letting:

(1) Do not place asphaltic mixture when the air temperature approximately 3 feet above grade, in shade, and away from artificial heat sources is less than 36 F for upper layers or 32 F for lower layers unless the engineer allows in writing. The contractor should place HMA pavement for projects on or north of STH 29 between May 1 and October 15 inclusive and for projects south of STH 29 between April 15 and November 1 inclusive. Notify the engineer at least one business day before paving.

(2) Unless the contract specifies otherwise, conform to the following:

- Keep the road open to all traffic during construction.
- Prepare the existing foundation for treatment as specified in 211.
- Incorporate loose roadbed aggregate as a part of preparing the foundation, in shoulder construction, or dispose of as the engineer approves.

(3) Place asphaltic mixture only on a prepared, firm, and compacted base, foundation layer, or existing pavement substantially surface-dry and free of loose and foreign material. Do not place over frozen subgrade or base, or where the roadbed is unstable.

450.5 Payment

Replace the entire text with the following effective with the May 2015 letting:

(1) All costs of furnishing, maintaining, and operating the truck scale or other weighing equipment and furnishing the weigh tickets are incidental to the contract.

(2) Nonconforming material allowed to remain in place is subject to price adjustment under 105.3.2.

(3) Full-depth sawing to remove integrally placed safety edge where not required is incidental to the contract.

(4) The contractor is responsible for the quality of HMA pavement placed in cold weather. If because of an excusable compensable delay under 108.10.3, the engineer directs the contractor to pave when the temperature is less than 36 F for the upper layer or less than 32 F for lower layers, the department:

- Will relieve the contractor of responsibility for damage and defects the engineer attributes to cold weather paving.
- Will not assess disincentives for density or ride.

455.3.2.1 General

Replace the paragraphs one and two with the following effective with the January 2015 letting:

(1) Apply tack coat only when the air temperature is 32 F or more unless the engineer approves otherwise in writing. Before applying tack coat ensure that the surface is dry and reasonably free of loose dirt, dust, or other foreign matter. Do not apply if weather or surface conditions are unfavorable or before impending rains.

(2) Use tack material of the type and grade the contract specifies. The contractor may, with the engineer's approval, dilute tack material as allowed under 455.2.4. Provide calculations using the asphalt content as-received from the supplier and subsequent contractor dilutions to show that as-placed material has 50 percent or more residual asphalt content. Apply at 0.050 to 0.070 gallons per square yard, after dilution, unless the contract designates otherwise. The engineer may adjust the application rate based on surface conditions. Limit application each day to the area the contractor expects to pave during that day.

460.2.2.3 Aggregate Gradation Master Range

Replace paragraph one with the following effective with the December 2014 letting:

(1) Ensure that the aggregate blend, including recycled material and mineral filler, conforms to the gradation requirements in table 460-1. The values listed are design limits; production values may exceed those limits.

TABLE 460-1 AGGREGATE GRADATION MASTER RANGE AND VMA REQUIREMENTS

SIEVE	PERCENTS PASSING DESIGNATED SIEVES						
	NOMINAL SIZE						
	37.5 mm	25.0 mm	19.0 mm	12.5 mm	9.5 mm	SMA 12.5 mm	SMA 9.5 mm
50.0-mm	100						
37.5-mm	90 –100	100					
25.0-mm	90 max	90 -100	100				
19.0-mm	___	90 max	90 -100	100		100	
12.5-mm	___	___	90 max	90 -100	100	90 - 97	100
9.5-mm	___	___	___	90 max	90 -100	58 - 72	90 - 100
4.75-mm	___	___	___	___	90 max	25 - 35	35 - 45
2.36-mm	15 – 41	19 - 45	23 - 49	28 - 58	20 - 65	15 - 25	18 - 28
75-µm	0 – 6.0	1.0 - 7.0	2.0 - 8.0	2.0 - 10.0	2.0 - 10.0	8.0 - 12.0	10.0 - 14.0
% MINIMUM VMA	11.0	12.0	13.0	14.0[1]	15.0[2]	16.0	17.0

[1] 14.5 for E-0.3 and E-3 mixes.

[2] 15.5 for E-0.3 and E-3 mixes.

460.3.4 Cold Weather Paving

Add a new subsection as follows effective with the May 2015 letting:

460.3.4 Cold Weather Paving

460.3.4.1 Cold Weather Paving Plan

(1) Submit a written cold weather paving plan to the engineer at the preconstruction meeting. In that plan outline material, operational, and equipment changes for paving when the air temperature approximately 3 feet above grade, in shade, and away from artificial heat sources is less than 40 F. Include the following:

- Use a department-accepted HMA mix design that incorporates a warm mix additive from the department's approved products list. Do not use a foaming process that introduces water into the mix.
- Use additional rollers.

(2) Engineer written acceptance is required for the cold weather paving plan. Engineer acceptance of the plan does not relieve the contractor of responsibility for pavement performance except as specified in 450.5(4).

460.3.4.2 Cold Weather Paving Operations

(1) Do not place asphaltic mixture when the air temperature approximately 3 feet above grade, in shade, and away from artificial heat sources is less than 40 F unless a valid engineer-accepted cold weather paving plan is in effect.

(2) If the national weather service forecast for the construction area predicts ambient air temperature less than 40 F at the projected time of paving within the next 24 hours, confirm or submit revisions to a previously engineer-accepted cold weather paving plan for engineer validation. Upon validation of the plan, the engineer will allow paving for the next day. Once in effect, pave conforming to the engineer-accepted cold weather paving plan for the balance of that work day or shift regardless of the temperature at the time of paving.

460.4 Measurement

Add paragraph two as follows effective with the January 2015 letting:

(2) The department will measure HMA Cold Weather Paving by the ton of HMA mixture for pavement placed conforming to an engineer-accepted cold weather paving plan.

460.5.1 General

Revise paragraph one as follows effective with the January 2015 letting:

(1) The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
460.1100	HMA Pavement Type E-0.3	TON
460.1101	HMA Pavement Type E-1	TON
460.1103	HMA Pavement Type E-3	TON
460.1110	HMA Pavement Type E-10	TON
460.1130	HMA Pavement Type E-30	TON
460.1132	HMA Pavement Type E-30X	TON
460.1700	HMA Pavement Type SMA	TON
460.2000	Incentive Density HMA Pavement	DOL
460.4000	HMA Cold Weather Paving	TON

460.5.2.2 Disincentive for HMA Pavement Density

Revise paragraph two as follows effective with the January 2015 letting:

(2) The department will not assess density disincentives for pavement placed in cold weather because of a department-caused delay as specified in 450.5(4).

460.5.2.4 Cold Weather Paving

Add a new subsection as follows effective with the May 2015 letting:

460.5.2.4 Cold Weather Paving

(1) Payment for HMA Cold Weather Paving is full compensation for additional materials and equipment specified for cold weather paving under 460.3.4 including costs for preparing, administering, and following the contractor's cold weather paving plan. The department will not pay for HMA Cold Weather Paving for HMA placed on days when the department is assessing liquidated damages.

(2) If HMA pavement is placed under 460.3.4 and the HMA Cold Weather Paving bid item is not in the contract, the department will pay for the additional costs specified in 460.5.2.4(1) as extra work. The department will pay separately for HMA pavement under the appropriate HMA Pavement bid items.

465.2 Materials

Replace paragraph two with the following effective with the December 2014 letting:

(2) Under the other 465 bid items, the contractor need not submit a mix design. Furnish aggregates mixed with a type AC asphaltic material, except under the Asphaltic Curb bid item furnish PG58-28 asphaltic material. Use coarse and fine mineral aggregates uniformly coated and mixed with the asphaltic material in an engineer-approved mixing plant. The contractor may include reclaimed asphaltic pavement materials in the mixture.

506.3.2 Shop Drawings

Replace the entire text with the following effective with the May 2015 letting:

(1) Ensure that shop drawings conform to the contract plans and provide additional details, dimensions, computations, and other information necessary for completely fabricating and erecting the work. Include project and structure numbers on each shop drawing sheet.

(2) Check shop drawings and submit electronically to the department for review before beginning fabrication. For primary fabrication items, also certify that shop drawings conform to quality control standards by submitting department form DT2333. Department review does not relieve the contractor from responsibility for errors or omissions on shop drawings.

(3) Shop drawings are part of the contract. The department must approve differences between shop drawings and contract plans. The contractor bears the costs of department-approved substitutions. Do not deviate from or revise drawings without notifying the department and resubmitting revised drawings.

(4) Ensure that the fabricator delivers 3 sets of shop drawings for railroad structures to the railroad company upon contract completion.

Bid Items Added

Add the following new bid item effective with the January 2015 letting:

ITEM NUMBER	DESCRIPTION	UNIT
460.4000	HMA Cold Weather Paving	TON

Errata

Make the following corrections to the standard specifications:

501.3.2.4.4 Water Reducer

Correct errata by deleting the reference to footnote 6 for grade D concrete.

(1) Add a water reducing admixture conforming to 501.2.3. Determine the specific type and rate of use based on the atmospheric conditions, the desired properties of the finished concrete and the manufacturer's recommended rate of use. The actual rate of use shall at least equal the manufacturer's recommended rate, and both the type and rate used require the engineer's approval before use.

506.5 Payment

Correct errata by changing the reference to 506.3.22.

(9) The department will limit costs for inspections conducted under 506.3.22 to $0.05 per pound of material and deduct costs in excess of that amount from payment due the contractor. The department will determine costs for in-house inspections based on hourly rates for department staff plus overhead and use invoiced costs for contracted-out inspections. The department will administer deductions for the contractor's share of the total inspection cost under the Excess Costs For Fabrication Shop Inspection administrative item.

ADDITIONAL SPECIAL PROVISION 7

A. Reporting 1st Tier and DBE Payments During Construction

1. Comply with reporting requirements specified in the department's Civil Rights Compliance, Contractor's User Manual, Sublets and Payments.
2. Report payments to all DBE firms within 10 calendar days of receipt of a progress payment by the department or a contractor for work performed, materials furnished, or materials stockpiled by a DBE firm. Report the payment as specified in A(1) for all work satisfactorily performed and for all materials furnished or stockpiled.
3. Report payments to all first tier subcontractor relationships within 10 calendar days of receipt of a progress payment by the department for work performed. Report the payment as specified in A(1) for all work satisfactorily performed.
4. All tiers shall report payments as necessary to comply with the DBE payment requirement as specified in A(2).
5. Require all first tier relationships, DBE firms and all other tier relationships necessary to comply with the DBE payment requirement in receipt of a progress payment by contractor to acknowledge receipt of payment as specified in A(1), (2), (3) and (4).
6. All agreements made by a contractor shall include the provisions in A(1), (2), (3), (4) and (5), and shall be binding on all first tier subcontractor relationships and all contractors and subcontractors utilizing DBE firms on the project.

B. Costs for conforming to this special provision are incidental to the contract.

ADDITIONAL SPECIAL PROVISION 9
Electronic Certified Payroll Submittal

(1) Use the department's Civil Rights Compliance System (CRCS) to submit certified payrolls electronically. Details are available online through the department's highway construction contractor information (HCCI) site on the Labor, Wages, and EEO Information page at: http://www.dot.wi.gov/business/civilrights/laborwages/index.htm

(2) Ensure that all tiers of subcontractors, as well as all trucking firms, submit their weekly certified payrolls electronically through CRCS. These payrolls are due within seven calendar days following the close of the payroll period. Every firm providing physical labor towards completing the project is a subcontractor under this special provision.

(3) Upon receipt of contract execution, promptly make all affected firms aware of the requirements under this special provision and arrange for them to receive CRCS training as they are about to begin payrolls. The department will provide training either in a classroom setting at one of our regional offices or by telephone. Contact Tess Mulrooney at 608-267-4489 to schedule the training.

(4) The department will reject all paper submittals of forms DT-1816 and DT-1929 for information required under this special provision. All costs for conforming to this special provision are incidental to the contract.

(5) Firms wishing to export payroll data from their computer system into CRCS should have their payroll coordinator send several sample electronic files to Tess two months before a payroll needs to be submitted. Not every contractor's payroll system is capable of producing export files. For details, see pages 17-22 of the CRCS System Background Information manual available online on the Labor, Wages, and EEO Information page at: http://www.dot.wi.gov/business/civilrights/laborwages/docs/crc-payroll-manual.pdf

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

SEPTEMBER 2002

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Employment Practices" and "Equal Opportunity Clause" set forth in the Required Contract Provisions, FHWA 1273.

2. The goals and timetables for minority and female participation expressed in percentage terms for the contractor's aggregate work force in each trade, on all construction work in the covered area, are as follows:

Goals for Minority Participation for Each Trade:

County	%	County	%	County	%
Adams	1.7	Iowa	1.7	Polk	2.2
Ashland	1.2	Iron	1.2	Portage	0.6
Barron	0.6	Jackson	0.6	Price	0.6
Bayfield	1.2	Jefferson	7.0	Racine	8.4
Brown	1.3	Juneau	0.6	Richland	1.7
Buffalo	0.6	Kenosha	3.0	Rock	3.1
Burnett	2.2	Kewaunee	1.0	Rusk	0.6
Calumet	0.9	La Crosse	0.9	St. Croix	2.9
Chippewa	0.5	Lafayette	0.5	Sauk	1.7
Clark	0.6	Langlade	0.6	Sawyer	0.6
Columbia	1.7	Lincoln	0.6	Shawano	1.0
Crawford	0.5	Manitowoc	1.0	Sheboygan	7.0
Dane	2.2	Marathon	0.6	Taylor	0.6
Dodge	7.0	Marinette	1.0	Trempealeau	0.6
Door	1.0	Marquette	1.7	Vernon	0.6
Douglas	1.0	Menominee	1.0	Vilas	0.6
Dunn	0.6	Milwaukee	8.0	Walworth	7.0
Eau Claire	0.5	Monroe	0.6	Washburn	0.6
Florence	1.0	Oconto	1.0	Washington	8.0
Fond du Lac	1.0	Oneida	0.6	Waukesha	8.0
Forest	1.0	Outagamie	0.9	Waupaca	1.0
Grant	0.5	Ozaukee	8.0	Waushara	1.0
Green	1.7	Pepin	0.6	Winnebago	0.9
Green Lake	1.0	Pierce	2.2	Wood	0.6

Goals for female participation for each trade: 6.9%

These goals are applicable to all the contractor's construction work, (whether or not it is federal or federally assisted), performed in the covered area. If the contractor performs construction work in the geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The contractor's compliance with the Executive Order and the Regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the Regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

   As referred to in this section, the Director means:

   Director
   Office of Federal Contract Compliance Programs
   Ruess Federal Plaza
   310 W. Wisconsin Ave., Suite 1115
   Milwaukee, WI 53202

   The "Employer Identification Number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

4. As used in this notice, and in the contract resulting from solicitation, the "covered area" is the county(ies) in Wisconsin to which this proposal applies.

DECEMBER 2013

BUY AMERICA PROVISION

All steel and iron materials permanently incorporated in this project shall be domestic products and all manufacturing and coating processes for these materials from smelting forward in the manufacturing process must have occurred within the United States. Coating includes epoxy coating, galvanizing, painting and any other coating that protects or enhances the value of a material subject to the requirements of Buy America. The exemption of this requirement is the minimal use of foreign materials if the total cost of such material permanently incorporated in the product does not exceed one-tenth of one percent (1/10 of 1%) of the total contract cost or $2,500.00, whichever is greater. For purposes of this paragraph, the cost is that shown to be the value of the subject products as they are delivered to the project. The contractor shall take actions and provide documentation conforming to CMM 2-28.5 to ensure compliance with this “Buy America” provision.

http://roadwaystandards.dot.wi.gov/standards/cmm/cm-02-28.pdf#cm2-28.5

Upon completion of the project certify to the engineer, in writing using department form WS4567, that all steel, iron, and coating processes for steel or iron incorporated into the contract work conform to these "Buy America" provisions. Attach a list of exemptions and their associated costs to the certification form. Department form WS4567 is available at:

http://roadwaystandards.dot.wi.gov/standards/forms/ws4567.doc

Effective with September 2004 Letting

WISCONSIN DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS AND TRANSPORTATION FACILITIES

SUPPLEMENTAL REQUIRED CONTRACT PROVISIONS

I. WAGE RATES, HOURS OF LABOR AND PAYMENT OF WAGES

The schedule of "Minimum Wage Rates" attached hereto and made a part hereof furnishes the prevailing wage rates that have been determined pursuant to Section 103.50 of the Wisconsin Statutes. These wage rates are the minimum required to be paid to the various laborers, workers, mechanics and truck drivers employed by contractors and subcontractors on the construction work embraced by the contract and subject to prevailing hours and wages under Section 103.50, Stats. If necessary to employ laborers, workers, mechanics or truck drivers whose classification is not listed on the schedule, they shall be paid at rates conformable to those listed for similar classifications. Apprentices shall be paid at rates not less than those prescribed in their state indenture contacts.

While the wage rates shown are the minimum rates required by the contract to be paid during its life, this in not a representation that labor can be obtained at these rates. It is the responsibility of bidders to inform themselves as to the local labor conditions and prospective changes or adjustments of wage rates. No increase in the contract price shall be allowed or authorized on account of the payment of wage rates in excess of those listed herein.

Pursuant to Section 103.50 of the Wisconsin Statutes, the prevailing hours of labor have been determined to be up to 10 hours per day and 40 hours per calendar week Monday through Friday. If any laborer, worker, mechanic or truck driver is permitted or required to work more than the prevailing number of hours per day or per calendar week on this contract, they shall be paid for all hours in excess of the prevailing hours at a rate of at least one and one-half (1 1/2) times their hourly rate of pay. All work on Saturday, Sunday and the following holidays is to be paid at time and a half: (1) January 1, (2) the last Monday in May, (3) July 4, (4) the first Monday in September, (5) the fourth Thursday in November, (6) December 25, (7) the day before if January 1, July 4 or December 25 falls on a Saturday and (8) the day following if January 1, July 4 or December 25 falls on a Sunday.

All laborers, workers, mechanics and truck drivers shall be paid unconditionally not less often than once a week. Persons who own and operate their own trucks must receive the prevailing truck driver rate for the applicable type of truck (i.e. 2 axle, 3 or more axle, articulated, eculid or dumptor) he or she operates, plus an agreed upon amount for the use of his or her truck. Every owner-operator MUST be paid separately for their driving and for the use of their truck.

For those projects subject to the requirements of the Davis-Bacon Act, the Secretary of Labor will also have determined "Minimum Wage Rates" for work to be performed under the contract. These rates are, for all or most of the labor, worker, mechanic or truck driver classifications, identical to those established under Section 103.50 of the Wisconsin Statutes. In the event the rates are not identical, the higher of the two rates will govern.

II. PAYROLL REQUIREMENTS

All contractors and subcontractors must submit weekly Certified Payrolls and Compliance Statement verifying that all laborers, workers, mechanics and truck drivers working on the project have been paid the prevailing wage rates for all work performed under the contract required by Section 103.50 of the Wisconsin Statutes.

III. POSTINGS AT THE SITE OF THE WORK

In addition to the required postings furnished by the Department, the contractor shall post the following in at least one conspicuous place at the site of work:

a. "NOTICE TO EMPLOYEES," which provides information required to be posted by the provisions of Section 103.50 of the Wisconsin Statutes.

b. A copy of the State of Wisconsin Minimum Wages Rates. (Four pages.)

c. A copy of the contractor's Equal Employment Opportunity Policy.

d. On any project involving federal aid, in addition to the furnished postings, the contractor shall post a copy of the "Davis-Bacon Act, Minimum Wage Rates". (Three pages.)

IV. WAGE RATE REDISTRIBUTION

The amount specified as the hourly basic rate of pay and the amount(s) specified as the fringe benefit contribution(s), for all classes of laborers, workers, mechanics or truck drivers may be redistributed, when necessary, to conform to those specified in any applicable collective bargaining agreement, provided that both parties to such agreement

request and receive the approval for any such redistribution from both the Department of Transportation and the Department of Workforce Development prior to the implementation of such redistribution.

V. ADDITIONAL CLASSIFICATIONS

Any unlisted laborer or mechanic classification that is needed to perform work on this project, and is not included within the scope of any of the classifications listed in the application prevailing wage rate determination, may be added after award only if all of the following criteria have been met:

1. The affected employer(s) must make a written request to WisDOT Central Office to utilize the unlisted classification on this project.

2. The request must indicate the scope of the work to be performed by the unlisted classification and must indicate the proposed wage/fringe benefit package that the unlisted classification is to receive.

3. The work to be performed by the unlisted classification must not be performed by a classification that is included in the applicable prevailing wage rate determination.

4. The unlisted classification must be commonly employed in the area where the project is located.

5. The proposed wage/fringe benefit package must bear a reasonable relationship to those set forth in the applicable prevailing wage rate determination.

6. The request should be made prior to the actual performance of the work by the unlisted classification.

7. DWD must approve the use of the unlisted classification and the proposed wage/fringe benefit package. USDOL also must approve the use of the unlisted classification and the proposed wage/fringe benefit package on federal aid projects.

8. WisDOT and DWD may amend the proposed wage/fringe benefit package, as deemed necessary, and may set forth specific employment ratios and scope of work requirements in the approval document.

The approved wage/fringe benefit package shall be paid to all laborers, workers, mechanics or truck drivers performing work within the scope of that performed by the unlisted classification, from the first day on which such work is performed. In the event that work is performed by the unlisted classification prior to approval, the wage/fringe benefit package to be paid for such work must be in conformance with the wage/fringe

benefit package approved for such work. Under this arrangement a retroactive adjustment in wages and/or fringe benefits may be required to be made to the affected laborers, workers, mechanics or truck drivers by the affected employer(s).

ANNUAL PREVAILING WAGE RATE DETERMINATION
FOR ALL STATE HIGHWAY PROJECTS
MILWAUKEE COUNTY

Compiled by the State of Wisconsin - Department of Workforce Development
for the Department of Transportation
Pursuant to s. 103.50, Stats.
Issued on May 1, 2015

CLASSIFICATION: Contractors are required to call the Department of Workforce Development if there are any questions reqarding the proper trade or classification to be used for any worker on a public works project.

OVERTIME: Time and one-half must be paid for all hours worked over 10 hours per day and 40 hours per calendar week and for all hours worked on Saturday, Sunday and the following six (6) holidays: January 1; the last Monday in May; July 4; the 1st Monday in September; the 4th Thursday in November; December 25; the day before if January 1, July 4 or December 25 falls on a Saturday; the day following if January 1, July 4 or December 25 falls on a Sunday.

FUTURE INCREASE: If indicated for a specific trade or occupation, the full amount of such increase MUST be added to the "TOTAL" indicated for such trade or occupation on the date(s) such increase(s) becomes effective.

PREMIUM PAY: If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whenever such pay is applicable.

SUBJOURNEY: Wage rates may be available for some of the classifications indicated below. Any employer that desires to use any subjourney classification on a project MUST request the applicable wage rate from the Department of Workforce Development PRIOR to the date such classification is used on such project. Form ERD-10880 is available for this purpose and can be obtained by writing to the Department of Workforce Development, Equal Rights Division, P.O. Box 8928, Madison, WI 53708.

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
Bricklayer, Blocklayer or Stonemason	35.37	17.99	53.36
Carpenter	33.68	19.99	53.67
Cement Finisher	32.75	19.21	51.96
Future Increase(s): Add $1.87 on 6/1/15; Add $1.75 on 6/1/16. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.			
Electrician	33.93	22.77	56.70
Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Fence Erector	23.73	19.09	42.82
Ironworker	30.77	23.97	54.74
Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Line Constructor (Electrical)	37.43	18.19	55.62
Painter	29.22	16.69	45.91
Pavement Marking Operator	30.27	18.79	49.06
Piledriver	30.11	26.51	56.62
Future Increase(s): Add $1.50/hr on 6/1/2015; Add $1.60/hr on 6/1/2016. Premium Pay: Add $.65/hr for Piledriver Loftsman; Add $.75/hr for Sheet Piling Loftsman. DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Roofer or Waterproofer	29.40	17.05	46.45
Teledata Technician or Installer	24.89	17.15	42.04
Tuckpointer, Caulker or Cleaner	33.76	17.82	51.58

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
Underwater Diver (Except on Great Lakes)	35.40	15.90	51.30
Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	35.55	15.57	51.12
Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	31.60	14.64	46.24
Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	27.65	13.44	41.09
Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.68	12.83	38.51
Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	11.63	33.38
TRUCK DRIVERS			
Single Axle or Two Axle	25.18	18.31	43.49
Future Increase(s): Add $1.15/hr on 6/1/2015. Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Three or More Axle	25.28	18.31	43.59
Future Increase(s): Add $1.15/hr on 6/1/2015. Premium Pay: DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.			
Articulated, Euclid, Dumptor, Off Road Material Hauler	30.27	21.15	51.42
Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.			
Pavement Marking Vehicle	23.16	17.13	40.29
Shadow or Pilot Vehicle	24.37	17.77	42.14
Truck Mechanic	24.52	17.77	42.29
LABORERS			
General Laborer	27.06	20.03	47.09
Future Increase(s): Add $1.05/hr eff. 06/01/2015; Add $1.00/hr eff. 06/01/2016; Add $1.00/hr eff. 06/01/2017 Premium Pay: Add $.15/hr for air tool operator, joint sawer and filler (pavement), vibrator or tamper operator (mechanical hand operated), chain saw operator and demolition burning torch laborer; Add $.35/hr for bituminous worker (raker and luteman), formsetter (curb, sidewalk and pavement) and strike off man; Add $.50/hr for line and grade specialist; Add $.65/hr for blaster and powderman; Add $2.01/hr for topman; Add $2.46/hr for bottomman; Add $3.23/hr for pipelayer. / DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).			
Asbestos Abatement Worker	22.05	18.41	40.46
Landscaper	27.06	20.03	47.09
Future Increase(s): Add $1.05/hr eff. 06/01/2015; Add $1.00/hr eff. 06/01/2016; Add $1.00/hr eff. 06/01/2017 Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).			
Flagperson or Traffic Control Person	22.55	19.37	41.92

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
	$	$	$
Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.71	16.01	33.72
Railroad Track Laborer	14.50	4.39	18.89
HEAVY EQUIPMENT OPERATORS			
Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Traveling Crane (Bridge Type). Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.	37.72	21.15	58.87
Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs., & Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.	37.22	21.15	58.37
Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Automatic Subgrader (Concrete); Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boatmen (NOT Performing Work on the Great Lakes); Boring Machine (Directional, Horizontal or Vertical); Bridge (Bidwell) Paver; Bulldozer or Endloader; Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, VIbratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane WIth a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type);	36.72	21.15	57.87

TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A- Frames. Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.			
Belting, Burlap, Texturing Machine; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Asphalt Plant, Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Hoist (Tugger, Automatic); Jeep Digger; Joint Sawer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or WIthout Attachments); Telehandler; Tining or Curing Machine. Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.	36.46	21.15	57.61
Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Concrete Proportioning Plant; Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Pay: DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http:/ / www.dot.wi.gov/ business/ civilrights/ laborwages/ pwc. htm.	36.17	21.15	57.32
Fiber Optic Cable Equipment.	28.89	17.95	46.84
Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	41.65	21.71	63.36
Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	35.72	17.85	53.57
Work Performed on the Great Lakes Including Deck Equipment Operator, Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks-Great Lakes ONLY.	35.46	20.40	55.86

FEBRUARY 1999

NOTICE TO BIDDERS
WAGE RATE DECISION

The wage rate decision of the Secretary of Labor which has been incorporated in these advertised specifications is incomplete in that the classifications may be omitted from the Secretary of Labor's decision.

Since the bidder is responsible, independently, for ascertaining area practice with respect to the necessity, or lack of necessity, for the use of these classifications in the prosecution of the work contemplated by this project, no inference may be drawn from the omision of these classifications concerning prevailing area practices relative to their use. Further, this omission will not, per se, be construed as establishing any governmental liability for increased labor cost if it is subsequently determined that such classifications are required.

There may be omissions and/or errors in the federal wage rates. The bidder is responsible for evaluating and determining the correct applicable rate. The higher of state or federal rate will apply.

CONTRACT: 20150512023 PROJECT(S): 2070-09-70 FEDERAL ID(S): WISC 2015287

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 Contract Items					
0010	201.0110 Clearing	140.000 SY		.		.
0020	201.0210 Grubbing	140.000 SY		.		.
0030	204.0100 Removing Pavement	370.000 SY		.		.
0040	204.0150 Removing Curb & Gutter	750.000 LF		.		.
0050	204.0155 Removing Concrete Sidewalk	70.000 SY		.		.
0060	204.0195 Removing Concrete Bases	21.000 EACH		.		.
0070	204.0245 Removing Storm Sewer (size) 01. 12-Inch	16.000 LF		.		.
0080	204.0245 Removing Storm Sewer (size) 02. 24-Inch	16.000 LF		.		.
0090	205.0100 Excavation Common	150.000 CY		.		.
0100	213.0100 Finishing Roadway (project) 01. 2070-09-70	1.000 EACH		.		.

CONTRACT: 20150512023 PROJECT(S): 2070-09-70 FEDERAL ID(S): WISC 2015287

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0110	305.0120 Base Aggregate Dense 1 1/4-Inch	250.000 TON		.		.
0120	415.0090 Concrete Pavement 9-Inch	270.000 SY		.		.
0130	416.0610 Drilled Tie Bars	290.000 EACH		.		.
0140	416.0620 Drilled Dowel Bars	77.000 EACH		.		.
0150	520.8000 Concrete Collars for Pipe	4.000 EACH		.		.
0160	601.0331 Concrete Curb & Gutter 31-Inch	900.000 LF		.		.
0170	602.0410 Concrete Sidewalk 5-Inch	2,410.000 SF		.		.
0180	602.0515 Curb Ramp Detectable Warning Field Natural Patina	32.000 SF		.		.
0190	608.0324 Storm Sewer Pipe Reinforced Concrete Class III 24-Inch	16.000 LF		.		.
0200	608.0512 Storm Sewer Pipe Reinforced Concrete Class V 12-Inch	16.000 LF		.		.
0210	611.3004 Inlets 4-FT Diameter	1.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0220	611.3220 Inlets 2x2-FT	1.000 EACH		.		.
0230	611.8110 Adjusting Manhole Covers	1.000 EACH		.		.
0240	611.8115 Adjusting Inlet Covers	1.000 EACH		.		.
0250	619.1000 Mobilization	1.000 EACH		.		.
0260	620.0300 Concrete Median Sloped Nose	350.000 SF		.		.
0270	624.0100 Water	0.500 MGAL		.		.
0280	625.0100 Topsoil	330.000 SY		.		.
0290	628.1905 Mobilizations Erosion Control	2.000 EACH		.		.
0300	628.1910 Mobilizations Emergency Erosion Control	2.000 EACH		.		.
0310	628.7015 Inlet Protection Type C	20.000 EACH		.		.
0320	631.1100 Sod Erosion Control	330.000 SY		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0330	634.0810 Posts Tubular Steel 2x2-Inch X 10-FT	14.000 EACH		.		.
0340	634.0812 Posts Tubular Steel 2x2-Inch X 12-FT	6.000 EACH		.		.
0350	637.2210 Signs Type II Reflective H	156.180 SF		.		.
0360	637.2215 Signs Type II Reflective H Folding	89.520 SF		.		.
0370	638.2602 Removing Signs Type II	17.000 EACH		.		.
0380	638.3000 Removing Small Sign Supports	11.000 EACH		.		.
0390	643.0200 Traffic Control Surveillance and Maintenance (project) 01. 2070-09-70	14.000 DAY		.		.
0400	643.0300 Traffic Control Drums	1,410.000 DAY		.		.
0410	643.0420 Traffic Control Barricades Type III	168.000 DAY		.		.
0420	643.0705 Traffic Control Warning Lights Type A	185.000 DAY		.		.
0430	643.0715 Traffic Control Warning Lights Type C	510.000 DAY		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0440	643.0800 Traffic Control Arrow Boards	36.000 DAY		.		.
0450	643.0900 Traffic Control Signs	690.000 DAY		.		.
0460	646.0106 Pavement Marking Epoxy 4-Inch	800.000 LF		.		.
0470	646.0126 Pavement Marking Epoxy 8-Inch	1,000.000 LF		.		.
0480	646.0600 Removing Pavement Markings	1,900.000 LF		.		.
0490	647.0166 Pavement Marking Arrows Epoxy Type 2	3.000 EACH		.		.
0500	647.0356 Pavement Marking Words Epoxy	3.000 EACH		.		.
0510	647.0566 Pavement Marking Stop Line Epoxy 18-Inch	170.000 LF		.		.
0520	647.0766 Pavement Marking Crosswalk Epoxy 6-Inch	730.000 LF		.		.
0530	649.0400 Temporary Pavement Marking Removable Tape 4-Inch	8,800.000 LF		.		.
0540	652.0225 Conduit Rigid Nonmetallic Schedule 40 2-Inch	1,150.000 LF		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0550	652.0235 Conduit Rigid Nonmetallic Schedule 40 3-Inch	430.000 LF		.		.
0560	652.0605 Conduit Special 2-Inch	370.000 LF		.		.
0570	652.0615 Conduit Special 3-Inch	740.000 LF		.		.
0580	653.0140 Pull Boxes Steel 24x42-Inch	13.000 EACH		.		.
0590	653.0180 Pull Boxes Steel Communications (inch) 01. 24 X 42 -Inch	2.000 EACH		.		.
0600	653.0905 Removing Pull Boxes	25.000 EACH		.		.
0610	654.0101 Concrete Bases Type 1	7.000 EACH		.		.
0620	654.0102 Concrete Bases Type 2	6.000 EACH		.		.
0630	654.0110 Concrete Bases Type 10	2.000 EACH		.		.
0640	654.0113 Concrete Bases Type 13	2.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0650	654.0217 Concrete Control Cabinet Bases Type 9 Special	1.000 EACH		.		.
0660	655.0230 Cable Traffic Signal 5-14 AWG	750.000 LF		.		.
0670	655.0240 Cable Traffic Signal 7-14 AWG	840.000 LF		.		.
0680	655.0270 Cable Traffic Signal 15-14 AWG	1,240.000 LF		.		.
0690	655.0280 Cable Traffic Signal 19-14 AWG	240.000 LF		.		.
0700	655.0515 Electrical Wire Traffic Signals 10 AWG	2,160.000 LF		.		.
0710	655.0900 Traffic Signal EVP Detector Cable	1,000.000 LF		.		.
0720	656.0200 Electrical Service Meter Breaker Pedestal (location) 01. S 60TH ST & W Layton AVE (CTH Y)	LUMP	LUMP			.
0730	657.0100 Pedestal Bases	7.000 EACH		.		.
0740	657.0405 Traffic Signal Standards Aluminum 3. 5-FT	1.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0750	657.0425 Traffic Signal Standards Aluminum 15-FT	4.000 EACH		.		.
0760	657.0430 Traffic Signal Standards Aluminum 10-FT	2.000 EACH		.		.
0770	658.0110 Traffic Signal Face 3-12 Inch Vertical	12.000 EACH		.		.
0780	658.0120 Traffic Signal Face 5-12 Inch Vertical	8.000 EACH		.		.
0790	658.0215 Backplates Signal Face 3 Section 12-Inch	12.000 EACH		.		.
0800	658.0225 Backplates Signal Face 5 Section 12-Inch	8.000 EACH		.		.
0810	658.0416 Pedestrian Signal Face 16-Inch	8.000 EACH		.		.
0820	658.0600 Led Modules 12-Inch Red Ball	12.000 EACH		.		.
0830	658.0605 Led Modules 12-Inch Yellow Ball	12.000 EACH		.		.
0840	658.0610 Led Modules 12-Inch Green Ball	12.000 EACH		.		.
0850	658.0615 Led Modules 12-Inch Red Arrow	8.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0860	658.0620 Led Modules 12-Inch Yellow Arrow	16.000 EACH		.		.
0870	658.0625 Led Modules 12-Inch Green Arrow	8.000 EACH		.		.
0880	658.0635 Led Modules Pedestrian Countdown Timer 16-Inch	8.000 EACH		.		.
0890	658.5069 Signal Mounting Hardware (location) 01. S 60TH ST & W Layton AVE (CTH Y)	LUMP	LUMP			.
0900	661.0200 Temporary Traffic Signals for Intersections (location) 01. S 60TH ST & W Layton AVE (CTH Y)	LUMP	LUMP			.
0910	678.0200 Fiber Optic Splice Enclosure	2.000 EACH		.		.
0920	678.0300 Fiber Optic Splice	48.000 EACH		.		.
0930	678.0400 Fiber Optic Termination	4.000 EACH		.		.
0940	690.0250 Sawing Concrete	1,210.000 LF		.		.
0950	ASP.1T0A On-the-Job Training Apprentice at $5.00/HR	100.000 HRS	5.00000		500.00	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0960	ASP.1T0G On-the-Job Training Graduate at $5.00/HR	100.000 HRS	5.00000		500.00	
0970	SPV.0060 Special 01. Inlet Covers Type 57	5.000 EACH	.		.	
0980	SPV.0060 Special 02. Communication Vault 24 X 36 X 39 - Inch	3.000 EACH	.		.	
0990	SPV.0060 Special 03. Poles Type 10	2.000 EACH	.		.	
1000	SPV.0060 Special 04. Poles Type 12	2.000 EACH	.		.	
1010	SPV.0060 Special 05. Monotube Arms 30-FT	2.000 EACH	.		.	
1020	SPV.0060 Special 06. Monotube Arms 45-FT	1.000 EACH	.		.	
1030	SPV.0060 Special 07. Monotube Arms 55-FT	1.000 EACH	.		.	
1040	SPV.0060 Special 08. Internal Sanitary Manhole Seals	1.000 EACH	.		.	
1050	SPV.0060 Special 09. Utility Line Opening	4.000 EACH	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1060	SPV.0090 Special 01. Furnish and Install 12SM/12MM Fiber Optic Communicans Cable	1,070.000 LF		.		.
1070	SPV.0090 Special 02. Tracer Wire	840.000 LF		.		.
1080	SPV.0105 Special 01. Battery Backup System	LUMP	LUMP			.
1090	SPV.0105 Special 02. Traffic Signal Controller and Cabinet Fully Actuated 16-Phase	LUMP	LUMP			.
1100	SPV.0105 Special 03. Emergency Vehicle Preemption System	LUMP	LUMP			.
1110	SPV.0105 Special 04 Vehicular Video Detection System S 60TH ST & W Layton AVE (4 Cameras)	LUMP	LUMP			.
1120	SPV.0105 Special 05. Fiber Optic Communication System Intregation Documentation and Test	LUMP	LUMP			.
1130	SPV.0105 Special 06. Removing Traffic Signal Equiptment S 60TH ST & W Layton AVE	LUMP	LUMP			.
1140	SPV.0105 Special 07. Accessible Pedestrian Push Button System	LUMP	LUMP			.
	SECTION 0001 TOTAL					.
	TOTAL BID					.

PLEASE ATTACH SCHEDULE OF ITEMS HERE